Transaction Cost Theories on Fragmentation of Financial Institutions: The Case of Hedge Funds and Private Equity Firms Established in Switzerland

Dissertation

for the Faculty of Economics, Business Administration and Information Technology of the University of Zurich

to achieve the title

of Doctor of Philosophy

in Banking and Finance

presented by

Laura Aldape

from Basel, Switzerland

approved in April 2011 at the request of

Prof. Dr. Marc Paolella

Prof. Urs Birchler

The Faculty of Economics, Business Administration and Information Technology of the University of Zurich hereby authorizes the printing of this Doctoral Thesis, without thereby giving any opinion in views contained therein.

Zurich, April 6, 2011

Chairman of the Doctoral Committee: Prof. Dr. Dieter Pfaff

"Satisfaction lies in the effort, not in the attainment, full effort is full victory."

Mahatma Gandhi

This thesis would not have been possible without the help, guidance and supervision of my thesis advisors Prof. Urs Birchler and Prof. Dr. Marc Paolella, I am heartily thankful to them. I thank my fellow PhD colleagues, particularly Beat Affolter for the stimulating ideas and discussions along the project. I would also like to express my gratitude to the administrative staff at the Department of Banking and Finance for all their assistance.

Lastly, I offer my regards to all of those who supported me in any respect during the completion of my thesis, especially my husband, my son, my parents, siblings and friends.

Laura Aldape

Table of Content

List of Tables

List of Figures

Abstract

New institutional economists[1] have explained governance transactions through the use of transactional cost theories and its asset specificity components. Arguing that asset specialization, persistent in individual forms of governance, creates quasi rents and opportunistic behavior. "Resulting transaction costs between firms will tend to be reduced by means of vertical integration" (Riordan & Williamson, 1985, p. 377). The purpose of this paper is to relate this theory to the transaction cost-economizing interactions present in firms or business units active in private equity and hedge funds management. Transactional cost literature will be employed to explain the asset specificity dimension tied to these firms.

Additional organizational economic theories, including the resource-based approach and property rights will also serve as framework to indicate our case. Contrary to transaction cost predictions, our initial empirical analysis illustrates those hierarchal structures where human-asset specificity skills are present show characteristics which favor a fragmented hierarchy construction. We will try to test our case using a discrete choice model of the sample skills, regressing human asset specificity indexes on the probability of integration or non-integration. The model results could give information of the specific variables that is regulatory status and number of employees, which in a non generalizable way predict the non integrative outcome.

[1] See Williamson, Coase, Williamson and Joskow

Introduction

The purpose of the present paper is to provide an alternative view to the transactional cost theories. Through our analysis we will try to explain, if the skilled based nature related to the human knowledge present in business units, active in alternative assets management will have an effect on transaction cost-economizing interactions. We defined such interactions as integration and non-integration[2] transactions, present in hierarchical structures. In order to support our case the fragmentation-non-fragmentation dispute will be analyzed through the transaction cost theory of the firm as governance structure. Where governance theories of contact implementation and vertical integration play an important role. To do so one has to consider economic organization from a comparative institutional point of view in which transaction-cost economizing is the main objective. For our purposes, we wish to focus on organizational efficiency and not on allocative efficiency of the players.

The firm's distinctive competencies can be analyzed through several branches of knowledge proposed by organizational economics. As stated above we will primarily make use of transaction cost economics (Williamson, 1985), property rights (Alchian 1984; Coase, 1960), agency theory (Eisenhardt, 1989), resource-based theory (Ramanujam and Varadarajan, 1989), and X-Efficiency (Leibenstein, 1966) to complement our proposal. Therefore we leave behind the neoclassical theory of the firm and contemplate contemporary explanations to the boundary of the firm.

We will start in section one by explaining the interactions between organizational constructions in order to be able to define non-vertical integration through asset specificity, followed by our hypothesis based on opportunistic behavior incentives and capabilities accrual. In section two, we will direct our attention to the qualitative findings of our study illustrating the organizational transformations of governance structures submitted to natural selection pressures. We will specifically depict the qualitative findings on a value chain model where the cost-economizing interactions between players are observed and traced. The methodology and data analysis will be also presented. Finally, section three, will refer to a discrete choice model as inferential statistical method in which the internal knowledge based capabilities of individual firms are set to define the interactions which lead to fragmentation or non-fragmentation of the business units.

[2] The terms fragmentation and non-integration, as well as non-fragmentation and integration are used indiscriminately.

1. Interactions between organizational constructions explained through science of contract

In order to study the economic phenomena one can relate to two main approaches: science of choice (orthodoxy) and science of contract. We will give a general clarification of the first one to then take a detailed look at the private ordering ramification of science of contract as a way of clarifying the fragmented outcome of the firms under our particular study. While revising these organizational theories we will have to keep in mind that our unit of analysis will be the human-asset specificity transaction between firms (hierarchies).[3] Such transactions are defined by skill-related capabilities which in turn characterize the firms.

Science of choice was defined by Robbins (1932) earlier work as follows: "when time and the means for achieving ends are limited and capable of alternative application, and the ends are capable of being distinguished in order of importance, then behavior (of individuals or firms) necessarily assumes the form of choice" (p. 16). The science of choice has been developed in two parallel constructions: the theory of consumer behavior, in which consumers maximize utility, and the theory of the firm as a production function, in which firms maximize profit. Economists who work along these structures emphasize how quantities are influenced by changes in relative prices and available resources, a scheme which became the "dominant paradigm" for economics throughout the twentieth century (Reder, 1999, p.48).

Both Williamson (2002) and Buchanan (1987) reacted critically to the confinement of the science of choice approach to economics and have further contributed in defining the theory of the firm through the lens of contract. Science of choice would have had a "limited" contribution while trying to explain further economic problems as for example the one we set ourselves to investigate.

Private ordering plays a significant role in trying to explain the interactions between organizational entities. As a form of science of contract, it will further exemplify the underlying characteristics of the transactions between individual hierarchies. To do so, scholars of transactional events have further classified these economical phenomena into two separate branches. The first ramification concentrates on front-end incentive alignment[4] while the second features the governance of ongoing contractual relations[5]. Further on we will take a detailed

[3] In case some theories are described in generic terms.
[4] Mechanism design, agency theory and formal property rights.
[5] Contract implementation.

look at how incentive alignment and contractual relations affect hierarchies and market interactions and their integration decision.

Likewise Williamson's (2002) readings define private ordering as the efforts by the immediate parties to a transaction to align incentives and craft governance structures that are better attuned to their exchange needs (p.3). Hence, each transaction will involuntarily generate a cost, "the transaction cost approach regards the transaction as the basic unit of analysis and holds that understanding of transaction cost economizing is central to the study of organizations through assessing how their governance structures serve to economize on these transaction costs" (Williamson, 1981, p.548). In his definition three important aspects of organizational theory are encompassed: discrete structural analysis, since efforts take place between parties, interactions of modes of governance, given that parties with discrete characteristics engage in transactions and transaction costs economics, because those transactions involuntarily generate a cost.

To advance our subject we will make use of economic research highlighted by New Institutional Economics (NIE) which leaves behind the theory of the firm as a production function, which is a technological construction (neo-classical proposal), and analyzes the theory of the firm as a governance structure, which presents itself as an organizational construction. Due to its interdisciplinary scope, NIE best describes the transaction cost economics scheme relying on institutional environment features and on institutions of governance. Firm boundaries can be derived by aligning different transactions with governance structures in a discriminating way.

1.1. Governance structures differ in their competencies and costs

Organizational theory aids at identifying the characteristics of the players that take part in a transaction. Simon (1978) work describes the development of economics from a pure economic price theory to a more qualitative institutional analysis in which discrete structural alternatives are compared. With his remark, he makes it clear that each mode of governance (markets, hybrids, hierarchy) differs in kind.

In the course of our research, we center our attention predominantly on hierarchical structures (firms) since our proposition lies on evaluating the asset specificity concentration at a firm level be it in the form of a business unit or a firm.

To exemplify Simon's discrete institutional theory we rephrase our problematic in the following words: Not "based on skill related capabilities, how much the alternative asset firms will fragment?" but "what are the structural conditions (independent variables) that make consolidating or fragmenting rational or attractive?" If we notice that certain conditions or variables lead to fragmentation, then we can, as in the examples posted by Simon explain these facts using a discrete alternative and not a quantitative hypothesis. Therefore, concluding that the observable fact, the process of fragmentation, most likely will be produced at business units[6] with a high degree of concentration of structuring, distributing, investing and advising capabilities. This hypothesis will be tested.

To broaden the concept, Williamson (1991) proposes that each kind of governance holds its own set of attributes with weaknesses and strengths and can be distinguished by (1) different coordinating, incentive and control mechanisms (instruments) and by (2) different abilities to adapt to disturbances (performance attributes). Additionally each generic form is supported by a distinctive type of (3) contractual law (p.269). Through his models, Williamson explains the level of attributes each type of governance attains and the expected transactional cost derived from each feature.

In detail and based on institutional organization theories we can describe the discrete attributes in the following terms:

(1) Instruments are the incentive mechanisms (incentive intensity) and administrative controls employed by modes of governance in order to reduce costs and adapt efficiently (Simon, 1978).

(2) Performance attributes defined as the ability to adapt to change has an impact on the type of interactions governance structures engage in. On this topic, Hayek (1945) proposes a spontaneous organic evolution introducing price system as the most efficient mechanism for communicating information and inducing change. Actors adjust spontaneously[7] and autonomously to a new market situation following signals given by the changes in relative prices; therefore, his theory attributes an adaptive capacity to the market (p.527). Barnard (1938) on the other hand, focuses on the adaptive capacity of the internal organization in the form of induced cooperation. He defines coordinated/cooperative adaptation[8] as a "kind of cooperation among men that is conscious, deliberate and purposeful" (p.4), where the main concern of the organization

[6] Labeled as financial engineers on the qualitative conclusions
[7] Williamson refers to this term as autonomous adaptation or type A adaptation.
[8] Williamson refers to cooperative adaptation as type C adaptation.

is that of adaptation to changing circumstances through administration within the firm. Williamson suggests that is in fact adaptability the central problem of economic organization and that both kinds of adaptations coexist simultaneously and are needed in a high-performance system (Williamson, 1991b, p.163)

(3) Finally, particular forms of contract law support each generic mode of governance. On one side, classical contract law, based on clear agreements and containing formal and rigid terms, where all rules derived are strictly applied. At the same time, neoclassical contract law and excuse doctrine relieves parties from strict enforcement. The later one applies to contracts in which the parties to the transaction maintain autonomy but are bilaterally dependent to a nontrivial degree (Williamson, 1991).

In detail, Williamson describes the *attributes salient differences* between market and hierarchy as follows:

(1) incentive intensity: the high-powered incentives of markets give way to low powered incentives in firms;
(2) administrative controls: firms are supported by a more extensive array of administrative rules and procedures;
(3) adaptation: markets enjoy the advantage in effecting autonomous adaptation in response to changes in relative prices, but the advantage accrues to firms as more cooperative adaptations are needed; and
(4) contract law: the contract law of markets is legalistic and relies on court ordering whereas the firm supplants court ordering by private ordering and settles disputes by fiat; in effect the firm is its own court of ultimate appeal (Williamson, 1998, p. 37).

	Governance Structure		
Attributes	Market	Hybrid	Hierarchy
Instruments			
Incentive intensity	Strong	Semi-strong	Weak
Administrative controls	Weak	Semi- strong	Strong
Performance attributes			
Adaptation (A)	Strong	Semi- strong	Weak
Adaptation (C)	Weak	Semi- strong	Strong
Contract law	Strong	Semi- strong	Weak

Table 1 Distinguishing attributes of market, hybrid and hierarchy structures
Source: Williamson (1991)

The above enumerated attributes serve to compare governance structures and derive specific costs and opportunities. Alternative modes of governance are described in terms of their differential competence to deliver instruments and adaptations of both kinds (See Table 1 for a summarized categorization of governance structures). Here is where the transactional cost theories become relevant since costs and opportunities are determinant for a firm's decision to fragment or not.

As hybrid modes we can distinguish various forms of long-term contracting, reciprocal trading, regulation and relationships constituted through exchange agreements or franchising. The hybrid mode is characterized by semi-strong incentives, an intermediate degree of administrative apparatus, displays semi-strong adaptations of autonomous and coordinated adaptability and works out of a semi-legalistic contract regime (Williamson, 1991, p. 277-282).

Hierarchy structures are a more elastic and more adaptive mode of governance; therefore they can apply distinct forms of contracting depending on the nature of the dispute. If the transaction is organized as an internal procurement (e.g. transfer prices, quality failures) court hearings will be denied and forbearance will be employed (Williamson, 2002). As a result the implicit law of hierarchy is that of forbearance. On the other hand, if transactions are related to personnel disputes (e.g. executive compensation) and cannot be resolved internally neoclassical contract law will apply.

In these transactions, Llewellyn's (1931) concept of "contract as framework" can be applied. Llewellyn refers to contract as "a framework highly adjustable, a framework which almost never accurately indicates real working relations, but which affords a rough indication around which such relations vary and a norm of ultimate appeal when the relations cease in fact to work" (p.736-737). Under these circumstances, exchange relations over a wide range of contractual disturbances are supported. Hierarchies are characterized by a strong efficacy in administrative controls with suppressed incentive intensity, a strong coordinated adaptive type and a weak autonomous adaptation.

In our study, both hierarchies and hybrid types are important since they reflect the type of structures selected in our hypothesis. In the empirical classification, members of three classificatory headings: suppliers of financial services, financial engineers, and allocators present to a large extent hybrid-like constructions with the above mentioned transactional characteristics. Only manager selectors, attain in their vast majority, characteristics of a hierarchical mode.

A further salient characteristic relevant to our case is adaptation of the coordinated type. According to Williamson (2002), coordinated adaptations build up as asset specificity deepens. Therefore, compared to the market mode, hierarchy is favored as asset specificity builds up (ceteris paribus), since an organization can in a simpler way orchestrate coordinated adaptation to unanticipated disturbances (Riordan and Williamson, 1985). With this argument, Williamson builds-up on the vertical integration process derived from asset specificity. Asset specificity of the human type will define our case and will be discussed in detail in section 1.3.

Additionally, we most contemplate the types of disturbances that produce deviations and result in adaptive mechanisms employed by governance structures. Depending on the size of deviation from efficiency they are categorized as: inconsequential, consequential and highly consequential. They are inconsequential if only a small deviation from efficiency occurs in order to recover the costs of adjustment (Williamson, 1991). As disturbances become highly consequential, contracts experience strain, and given their autonomous ownership status they are prone to defect. One can conclude that if the costs of contract enforcement exceed the discounted value of continuing the exchange relationship, defection from the contract can be anticipated (Williamson, 1991, p.272).

Reviewing these efficiency constraints we assume that disturbances to which firms will be confronted are either of two different kinds: institutional environment and institutional arrangement. Williamson relies on the different categories of disturbances to calculate cost changes. In our case we will not measure the resulting gains of adaptation in terms of costs savings but in terms of the resulting capabilities acquired in order to moderate costs. We will discuss effective adaptation in section 2.

Williamson, in his comparative economic organization work measures the governance costs as a function of asset specificity elicited by each discrete structural form. In our study we do not measure the costs per se; we "borrow" his theories to further pose our own views according to our observable data. It is worth mentioning, that Williamson focuses on issues pertaining to organizational efficiency, mainly relying on cost rationalization.

1.2. Transactions attained by modes of governance differ in their dimensions

In addition, organizational theory tries to explain the interactions between the modes of governance and their underlying characteristics. According to Commons (1932) entities will engage in transactions which he refers as "the ultimate unit of activity or unit of transaction" which contain conflict, mutuality, and order attributes (p. 4).

Williamson (2002) adds the "operationalization" to the concept making it measurable by naming and explicating the critical dimensions with respect to which the unit varies. Of upmost importance for our findings are three dimensions that explain the transactions governance structures engage in. The dimensions which are key attributes to transactions are the following: (1) the *frequency* with which transactions recur [9] (2) the *uncertainty* to which transactions are subject and (3) the type and degree of *asset specificity* involved in supplying the good or service in question.

The three dimensions deal with microanalytic processes that arise between the players and incur in costs which can be solved by different degrees of integration (See Table 2). The challenge lies in "aligning the different kinds of transactions with distinct modes of governance in an economizing way" (Williamson, 2002, p.6).

Transactions can be frequent or rare; have high or low uncertainty; or involve specific or non-specific assets. These three variables will, according to the transaction cost theory, determine whether transaction costs will be lowest in a market or in a hierarchy mode. Therefore, they need to be considered in order to reach an appropriate decision about vertical integration.

		Asset specificity		
		Low for both parties	High for both parties	High
Uncertainty	High	Contract/vertical integration	Vertical integration	Vertical integration
	Low	Spot contract	Long-term contract	Vertical integration

Table 2 Relationship between asset specificity, uncertainty and governance structure
Source: Williamson (1991)

[9] Which bears both on the efficacy of reputation effects in the market and the incentive to incur the cost of specialized internal governance.

Williamson anticipates that *asset specificity, in conjunction with disturbances is where the main contractual action resides.* "Asset specificity which give rise to bilateral dependency, which by itself would not pose a problem were it not for the need for the parties to an incomplete contract to adapt to disturbances" (Williamson 1971, p. 113). Contracting therefore is needed to make unplanned adaptations. Uncertainty becomes the source of disturbances to which adaptation is required while frequency develops into reputation effects and setup costs.

The cost economizing considerations we want to explore are based on Coase (1988) original idea that firms arise for the purpose of economizing on transaction costs. In his view, the boundaries of the firm occur at the point where the cost savings from transacting within a firm are offset by the additional rigidity and error costs.

Furthermore Williamson (1998) sustains that transaction costs deliver essential information related to the nature and extent of the firm, they will try to explain its structure and the transformations that a firm encounters. In this context is important to assess how governance structures serve to economize on incurred transaction costs.

In practice, firms want to minimize their total costs, which are comprised of both production and transaction costs. Important considerations are the transactional contracting costs incurred by the firms. As described earlier frequency, uncertainty and asset specificity determine whether "market or hierarchy" will have lower transactions costs under the various circumstances.

"Transaction cost economics therefore invokes the discriminating alignment hypothesis, according to which transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, in their adaptive strength and weaknesses so as to accomplish a transaction cost economizing result" (Williamson, 1998, p.37).

While reviewing the empirical analysis we propose, the remediableness criterion, must be reported. The criterion refers to an existing organizational structure for which "no superior alternative can be recognized with expected net gains, is presumed to be efficient" (Williamson, 1998, p.43). If this can be in fact proven remains unknown. Authors such as Hennipman (1985), consent the need to examine implementation obstacles of economic and political kind in order to make full comparisons of proposed superior alternatives.

In a nutshell: Williamson (1998) contracting scheme diagram summarizes the contracting possibilities that occur between modes of governance. His proposition is to first try markets (node A), try hybrids (node C), and recourse to the firm only when all else fails (node D).

Nevertheless our case observes characteristics of Node D since human asset specific transactions are special purpose asset (k>=0) where dependency is built and safeguards are provided to protect transactions which poses specialized needs to particular parties (s>0) and where the transaction is taken out of the market and solved via internal hierarchical organization and coordination. According to Williamson, "*Node D, the firm, thus comes in only as transactions have especially high degrees of asset specificity and as added uncertainty pose greater needs for cooperative adaptation"* (p.39) See Figure 1.

In further work, Williamson (2008) describes in detail the characteristics of hierarchical structures found in Node D. "Governance (hierarchy) involves (1) unified ownership of successive stages, (2) coordinated adaptation at the interfaces by the application of routines (to manage disturbances in degree) as augmented by the use of fiat (to manage disturbances in kind), (3) internal dispute resolution by a common superior (boss) for disputes at the interfaces that cannot be resolved by the parties and (4) bureaucratic cost burdens" (pg.9).

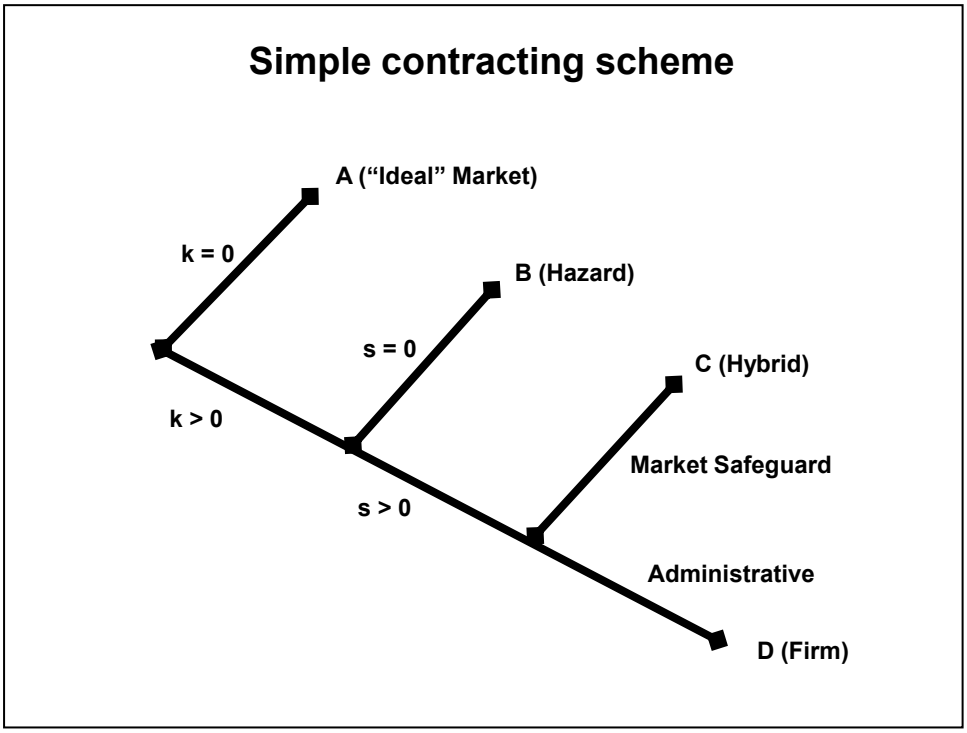

Figure 1 Simple contracting scheme
Source: Williamson (2008)

1.3. Asset specificity transaction costs and the vertical integration dilemma

Transaction cost economics can be best explained through the asset specificity dimension. "Asset specificity has reference to the degree to which an asset can be redeployed to alternative uses and by alternative users without sacrifice of the productive value" (Williamson, 1991, p.281). Williamson argues that where transactions involve assets that are only valuable (or are much more valuable) in the context of a specific transaction, transaction costs will tend to be reduced by vertical integration (Riordan & Williamson, 1985).

Asset specificity takes a variety of forms: (1) site specificity, (2) physical assets specificity, (3) human-asset specificity, (4) brand name capital, (5) dedicated assets, and (6) temporal specificity[10]. In addition, asset specificity is a measure/creates bilateral dependency. (Williamson, 1991)

Transactions for which a bilateral dependency condition obtains are those to which "fundamental transformation" applies (Williamson, 2002, p.8). Through this term, Williamson describes how an initial transaction between exchange partners creates a "transaction residual," that favors a continued trading relationship over other potential firms. The cost of supply form unspecialized capital is presumably great therefore alternative sources of supply will most likely obtain items at unfavorable terms, therefore generating a locked-up relationship[11]. The investment residual induces the parties to effectively operate in a bilateral (or at least quasi-bilateral) exchange relation for a considerable period thereafter.

Once economic agents make relationship-specific investments, that is, investment to some extent specific to a particular set of individual or assets, *appropriable specialized quasi rents are created and the possible gains from opportunistic behavior increase. The costs of contracting will generally increase more than the costs of vertical integration. Hence, ceteris paribus, we are more likely to observe vertical integration* (Klein, Crawford, & Alchian, 1978).

In Williamson's view, bringing a *transaction form the market into the firm (i.e. integration)* mitigates the opportunistic behavior and improves investment incentives (Hart, 1990, p. 159).

[10] (1) site specificity, as where successive stations are located in a cheek-by-jowl relation to each other so as to economize on inventory and transformation expenses; (2) physical assets specificity, such as specialized dies that are required to produce a component; (3) human-asset specificity, that arises in learning by doing; (4) brand name capital, (5) dedicated assets which are discrete investments in general purpose plant that are made at the behest of a particular customer; and (6) temporal specificity, which is akin to technological nonseparability and can be thought as a type of site specificity in which timely responsiveness by on-site human assets is vital.

[11] Inasmuch as the value of specific capital in other uses is, by definition, much smaller than the specialized use for which it has been intended.

In this context, the behavioral assumption of opportunism refers to the possibility that people will act in a self-interested way and may not be entirely honest and truthful about their intentions (Williamson, 1975, p. 26-30). We will further discuss the importance of human actors in the vertical integration decision.

A second behavioral assumption, the recognition that human assets are subject to bounded rationality[12] must be considered while analyzing transaction costs (Simon, 1978). It would not be enough for transaction cost economics to contemplate the human being as a perfectly rational utility maximizer (Coase, 1988). Additional explanations of the human cognitive factor are also required. Herbert Simon work contends the essential role of "the nature of the human beings whose behavior we are studying" (1985, p. 303). He points out the cognitive competence and self-interest attributes that are ascribed to human actors. The extreme application of both concepts obtains contractual consequences, strong assumptions about cognitive competences reduce contractual failure by reason of opportunism, and strong assumptions of benign behavior diminish forward planning. In this context, the assumption that rationality works as a suppressor of contractual hazards attributable to opportunism is valid.

Leibenstein (1966) developed the X-efficiency theory[13], which recognized that firms can operate behind the production frontier and be inefficient for non-allocative reasons[14]. His theory meant departing from the assumption of rationality, where he advanced a selective- rationality view in which organization members select the extent to which they deviate from maximizing behavior. By means of "selective" rationality the decision making process can include both rational and non-rational elements. In other words, under conditions where there is reduced constraint concern, individuals within the organization elect to operate less efficiently. With this postulation, the utility maximization assumption is no longer valid since the rationality assumption is its main supporting vehicle.

In a divergent theory, Williamson describes the transaction cost economics approach to cognition and self-interest as follows: "cognition combines bounded rationality with feasible

[12] Rationality refers to the fact that the economic actor has limits on the ability to discover or compute what behavior is optimal for him.
[13] As an alternative to the neoclassical treatment of firms
[14] Allocative efficiency is grounded in classical/neoclassical economics where, compelled by cost and demand alone, firms behave in a rational manner and make efficient decisions on output. Firms are rational utility maximizers that continuously operate on their production frontier. A firm is allocatively efficient when it adopts the optimum combination of inputs. On the other hand, the X-efficiency theory recognized that firms can operate behind the production frontier and be inefficient for non-allocative reasons such as poor decision making and not eliminating waste from time wasting by employees, absenteeism, poor quality output, and the like (Key,2005).

foresight while self-interest[15] joins benign behavior with opportunism. Thus all complex contracts are unavoidably incomplete (by reason of bounded rationality) yet human actors are assumed to have the capacity to look ahead, recognize hazards, work out the mechanisms, and, albeit imperfectly, factor the ramifications back into the ex ante contractual design (by reason of feasible foresight). Also, most human actors will do what they agree to and some will do more most of the time (benign behavior), but outliers for which the stakes are great will elicit defection and/or posturing with the purpose of inducing renegotiation (which are manifestations of opportunism)" (2009, p.150-151). Therefore additional contractual complications are posed.

Williamson ponders the possibility to dispel such actions by introducing cost effective ex ante safeguards to deter ex post opportunism. As mechanisms to do so, he proposes interim contracting and organizing transactions internally under unified ownership. His proposals serve as initial milestone to our non integration assumption given the absence of coordinated and effective safeguards on behalf of the principal. Implementation of such safeguards remains subject of analysis. (Williamson, 1998)

From these central statements applicable to our work, he summarizes the contracting world as one with incomplete contracts where hazards are expected. Strong hopes for foresight are also contemplated by means of ex ante commitments (not self-enforcing by reason of opportunism). An extreme application could lead to vertical integration practices. However expected hazards in the form of "relationship-specific investments, asymmetric information, costs of writing, monitoring, and enforcing contractual relationships have emerged as the key factors explaining *nonstandard* vertical relationships" (Joskow, 1988, p. 115)

Other transactional work, presented by Williamson (1985), depicts opportunism as an "unflattering attribute" basic to the logic of organization. In case of absence, there would be no contractual incentive to supplant market by hierarchy. Therefore "attenuating ex post hazards of opportunism through the ex ante choice of governance is central to the transaction cost economics exercise" (Williamson, 1998, p.31).

As a result, we can argue that human assets specificity attains both allocative and non-allocative attributes. Rationality facilitates efficiency towards costs and therefore decisions favor transactions that lead to a cost economizing outcome. If selective rationality is applied, decision making guides individuals within the organization to operate less efficiently in an X-efficiency

[15] Simon describes as "frailties of motive" the condition of self-interestedness (1985, p. 303), transaction cost economics describes self-interestedness not as frailty of motive but as opportunism

manner. Intermittent rationality is dependent on the level on internal and external pressures. For that reason we must not forget that X-efficiency theory is constrained by several assumptions. The ones relevant for our case read as follow: "(1) only individuals think and act, so they are the appropriate level of analysis by which firm behavior should be analyzed[16], (2) the interests of principal and agent may not coincide, (3) human behavior is not immediately responsive to changes in the environment, and (4) because labor contracts are incomplete some level of behavioral discretion exists" (Key et al., 2005, p.513). Therefore in our study we will not measure the most cost effective solution to each transaction but what is the rationality behind those transactions.

As already mentioned, self-interest is two sided: the benign version that most people will do what they say and some will do more most of the time. Yet "as circumstances change and the stakes progressively increase, deflection from the spirit of an agreement to insist on the letter of the contract-thereby to force renegotiation or termination-cannot be disallowed" (Williamson 2008, p. 6).

In our social analysis case we will discuss theories attaining to institutional environment, transaction cost economics, X-efficiency, and agency theory, mainly conciliating bounded rationality advanced in TCE and selected rationality advanced in X-efficiency and the economizing order to which they attain.

Vertical Integration as a Strategic Decision

TCE has been described as an interdisciplinary joiner of law, economics and organization, whose applications to strategic management ascribed to resource-based perceptive are applicable to our case. The field of strategic management aims at solving competitive advantage issues of firms located at "Node D". Here resource-based perspective[17] helps in analyzing the firm at individual level, given the fact that the economizing/discriminating alignment hypothesis operates at the generic level. This is possible given the working realm of resource-based theory, in which "rate, direction and performance implications of diversification strategy" of firms are a central element (Mahoney & Pandian, 1992, p. 363). The resource-based approach deals with the rent-generating heterogeneous firm, its origin, function, evolution and "sustainability".

By moving beyond the generic level, the analysis of the firms resides on answering the following question: "How should firm A – which has pre-existing strengths and weaknesses, core

[16] And not the transaction as unit of analysis as otherwise proposed by TCE
[17] Stimulates conversation within mainstream strategy research, organizational economics and industrial organization research

competencies and disabilities– organize X?" (Williamson, 1998, pg. 48). By reformulating the issue of concern, we must now focus on describing the attributes a firm poses and compare them. It will be sufficient to measure the human asset specificity components at firm level through qualitative assessments determining differences rather than absolute magnitudes. In many cases simple rank ordering will tend to suffice.

In Table 3, Williamson (1998) redirects TCE to the service of strategic management:

		Resource based solution
Level	Generic Level	How do alternate generic modes (markets, hybrids, firms, bureaus) compare for purposes of organizing transaction X?
	Resource-based Level I	How should firm A, with its pre-existing strengths and weaknesses (core competencies and disabilities), organize transaction X?
	Resource-based: level II	How should firm A, with its pre-existing strengths and weaknesses, proceed with respect to market niches described by X1, X2, Y3; Z?
	Resource-based: level III	How should firm A, with its pre-existing strengths and weaknesses, reposition for the future in relation to the strategic situation (actual and potential rivalry; actual and potential market niches) of which it is a part or to which it can relate?

Table 3 Resource based classification
Source: Williamson (1998)

In the case we propose, the resource strategy is *knowledge*, based upon the firm capabilities to attain rents by owning specialized human skills. The firm appropriates rents when resources are firm-specific. "The difference between the first-best (current use) and second-best use (minimum required to draw a factor into a particular use) of a resource, the so-called quasi rent[18], is the amount a firm may appropriate to achieve above-normal returns" (Mahoney & Pandian, 1992, p.364). Williamson (1979) adds that quasi-rents are appropriable from idiosyncratic physical capital, human capital and dedicated assets.

Rent theory defines the resource position of an organization in terms of strengths and weaknesses simultaneously delineating the strategic advantage of the firm. The structuring, investing, distributing and advising capabilities of the alternative asset firm's are valued as unique capabilities in terms of technical know-how and managerial ability by the resource theory, which considers them important sources of heterogeneity that may result in sustained competitive advantage. In particular, distinctive competence and superior organizational routines (also considered the unit of analysis) in one or more of the firm's value-chain functions may enable the firm to generate rents from a resource advantage (Hitt and Ireland, 1985).

[18] Here used in the sense of Pareto/Marshallian rents by Klein, Crawford and Alchian

As already mentioned, "sustainability" of rents is crucial for the resource approach. If resources are imperfectly imitable and imperfectly substitutable they facilitate the heterogeneous firm to generate and sustain rents since they act as "isolating mechanisms" (Rumelt, 1984) or as barriers to imitation.

Of a comprehensive list of literature, published by Mahoney & Pandian (1992) relating the different examples of islolating mechanisms we adopt the following to clarify our case: (1) Management skills and team embodied capabilities (2) Unique managerial talent that is inimitable and (3) Unique combinations of business experience and most importantly (4) Distinctive competencies and core competencies that are difficult to replicate. The alternative asset industry makes use of *knowledge* as a safeguard screen which works as entry barrier against possible competitors and as protective mechanism against consolidation.

Vertical integration– or, the make-or-buy decision has been the archetypal problem for transaction cost economics. [19] It has been proposed as a solution to the general problem of opportunistic behavior in some form of economic enforceable long-term contract. Nevertheless, we found literature that calls a long-term contract a form of vertical integration (Klein, Crawford, & Alchian, 1978, p.302). Explicit long-term contracts are indeed a costly solution that will tend to reduce the level of opportunism resulting on a move towards complex ownership relationships. Once again opportunistic attributes give way to additional contractual complications, however in absence of opportunism there is no contractual reason to supplant market by hierarchy.

Riordan and Williamson (1985) observations on the topic of vertical integration are the following: vertical integration will be more common where (1) cost savings that accrue to asset specificity are great, (2) design features deter asset redeployment to alternative uses, (3a) economies of scale are small or, (3b) as among firms of different sizes, that larger firms will be more integrated than smaller, and (4) bureaucratic cost consequences of internal organization are less severe (p.375). In our empirical analysis vertical integration of type 3b will be tested, using number of employees as a translation of the variable size.

On the other hand, in his empirical research Stuckey (1983) cites downstream price discrimination rather than transaction cost considerations as possible reason for vertical integration.

[19] Many authors have dealt with this issue, from the original idea proposed by Coase in 1937 to recent studies made by Baker, Gibbons, and Murphy (1997). We will work in the advances considered by Williamson (1998)

A close examination of the vertical integration option can lead to several outcomes, first economies of scale and scope can predefine the decision to make or buy due to firm size limitations, secondly when the procurement of both options becomes feasible, the choice is restricted by comparative transaction costs considerations. "The attributes of the transaction and its resulting costs, in addition to the competencies of the modes of governance will define the make or buy resolution" (Williamson, 1998, p.34).

In a different segment, Williamson (1985) interprets the vertical integration option for intermediate products[20] and organization of labor. The transactions, in which intimidate products are traded, require the firm boundaries to be considered as an "inclusive set of stages for which the make-or-buy calculus is resolved by supplanting market by hierarchy" (1985, p.96). In these cases, unified ownership prevails and the decisions are coordinated by hierarchical structures where firms exercise fiat to resolve conflicts. As a result organizations will "employ transaction cost economics to the series of comparative contractual choices that the firm is required to make" (Williamson, 1998, p.35).

Where contractual choices are present, additional coordination abilities are needed to effect a structural change favorably. "Failures of coordination may arise because autonomous parties read and react to signals differently, even though their purpose is to achieve a timely and compatible combined response" (Williamson, 1991, p.278).

1.4. Explaining fragmentation (non-vertical integration) through human asset specificity: the case of alternative asset managers

The understanding of human asset specificity and their ramifications for vertical integration is found on literature mainly trying to define the alternative explanation for variations in make or buy decision. Monteverde and Teece (1982) refer to the automobile industry and hypothesize that vertical integration is more likely when asset specificity is more important. Stuckey (1983) analyzes the aluminum industry and introduce price discrimination as a possible cause of integration, while Masten (1984) examines the aerospace industry and accepts that as complete contracting becomes more costly, vertical integration will occur. Anderson and Schmittlein (1984) inspect the electronic industry, but apply a different dimension of internalization. They investigate the firm's reliance on personnel rather than on components as the rest of the authors

[20] Which are not intended (momentarily) for the end consumer.

previously described. Nevertheless we encounter a significant information gap relating to cases pertaining to the secondary industry.

The above mentioned literature focuses on specific industries, and analyzes data at institutional and transactional level to determine empirically the factors that reveal intra-industry variations in the structure of vertical relationships. The majority of the cases concentrate on a testing the dichotomous choice between internal production (vertical integration) and external (market) procurement of supplies. Assessments are based on a maximum likelihood estimates (MLE), Masten (1984) Joskow (1988), Lieberman (1991), try to measure the degree of asset specificity and its role determining the structure of vertical relationships.

To present our hypothesis, we have to mention the final theoretical remarks relating transaction cost theories to the human asset specificity factor, which will be investigated in the empirical section. Attributes related to asset specificity and uncertainty will help explain our case.

Human asset specificity, investment in relationship specific human capital, arises by learning by doing, in as much, as the mastered skills are transaction specific, the relation condition between the parties will generate a governance situation. If the skills are deepened and specialized to particular employer, both parts will have a special interest in maintaining a continuing employment relation, productive value will be lost if the relation is terminated.

In such relationships individuals possessing valued skills will expect compensation for their imperfectly transferable knowledge, through compensation firms will try to retain knowledge. According to Knight (1941) this learning by doing skills need to be embedded in a protective governance structure, if that is not the case, productive value will be sacrificed if the relationship is terminated (Williamson, 1981).

The resource-based approach[21] draws attention to key success factors embedded on the organizational genetics, which achieve firm-specific advantages by means of a "portfolio of differential core skills and routines and unique proprietary knowhow" (Mahoney & Pandian, 1992, p.369).

Previously discussed, literature mentions "isolating mechanisms" used by firms as barriers to imitation, which exist because of asset specificity and bounded rationality, both recognized as

[21] The resource based view incorporates the insights of contributions to strategic management in order to explain how firms generate rents.

generators of quasi-rents (Williamson, 1979). Such mechanisms may drive diversification, which is intensified by the nature of a firm's available resources and the market opportunities (Mahoney & Pandian, 1992). Resource-based theory of diversification, concentrates on diversification of firms to related markets, where the expansion into activities in which they have comparative advantages will most likely yield rents (Wernerfelt and Montgomery, 1988). The specific case we suggest, firms will stay on the same market and the rent creating factor, knowledge, is just translated to a new or a different hierarchical structure.

Firms may "accumulate knowledge" as a strategic asset, through R&D and learning, some of it incidental to the production process. In addition, knowledge can be intrinsic in the firm's distinctive competencies set upon substantive rules and routines (also referred as unit of analysis in literature) employed by management (Mahoney & Pandian, 1992, p.369). Therefore, they become unique assets which take the form of human capital.

Adapting the transaction cost approach into the resource-based approach obtains the following provisions; a firm is considered both an administrative organization and a pool of productive resources (Penrose, 1959). As a result, in order to take decisions related to expansion issues, the firm will rely on its own set of resources and those which will be acquired in the market to put forward its business related activities. Resources will be semi-permanently tied ('sticky') to the firm due to recontracting costs and market failures (Teece, 1990). Transaction cost failure are evident where intangible assets are present, as recurring example, we can mention the difficulty to disentangle know-how shared among employees from the organizational structure.

The asset would remain partially irrelevant if faced with the impossibility to extract its productive value. For that reason, the internal organizational counterpart for uncertainty is the ease with which the productivity of human assets can be evaluated. It is the metering factor, which determines specificity in relation to the easiness or difficulty to measure individual productive results. Human assets can thus be described (1) by the degree to which they are firm specific and (2) the easiness with which productivity can be metered (Williamson, 1981).

Alchian and Demsetz (1972) considered the theory of the firm as a team of production in which firms arise when task are technologically non-separable. They infer that "when tasks are non-separable individual productivity cannot be assessed by measuring output; as a result an assessment of inputs is needed". Their readings propose supplanting productivity by observing the intensity with which an individual works. Nevertheless, other authors conclude that metering internal organization transactions is "inordinately" difficult. (1972, p. 779)

Nevertheless. Williamson (1981, p.566) developed a four-way classification table matching internal governance structures with internal transactional attributes.

		Human Assets	
		Non-specific (H1)	Highly specific (H2)
Metering	Easiness (M1)	Spot market	Obligational market
	Difficulty (M2)	Primitive team	Rational team

Table 4 The governance of internal organization
Source: Williamson (1981)

Literature features the possibility of mixed internal governance structures which arise in order to service transactions that take on intermediate, rather than extreme M and H values. This is exactly the position we come across in our rationale. An intermediate governance transaction between obligational market (H2M1) and relational team (H2M2), in which individuals who manage alternative assets maintain human skill capabilities which are highly specific to the firm but with a certain level of easiness to measure. The norm in the alternative asset industry is to calculate individual productivity in terms of client's portfolio and/or assets under management.

In the study we present, productivity is measured as different combinations of a capabilities resulting in capability indexes at firm level. Indexes were derived for two product types' single and fund of funds using a factor analysis in order to determine the appropriate weight to be assigned to each capability component. Indexes[22] will be used as part of the structural condition variables that dictate a fragmented result.

We assume that the self descriptive response variable concentrates capabilities at a firm level which decide the fragmentation outcome. These shall be proportional to the capabilities of the individual members of the firm. Therefore, if we measure the asset specificity at an aggregated firm level, we simulate that each employee pertaining to the firm will mirror the capabilities encountered at the aggregated level. With this assumption in mind we can further assign the opportunistic behavior to the individual level while retaining the human capabilities at firm level.

[22] Single IDA Index, Single IDAS Index, FoF IDA Index, where I = Invest, D=Distribute, A=Advise, S=Structuring

The type of opportunistic behavior that develops in our case is directly related to the non-transferable knowledge attained by individual employees. The transaction has attained a bilateral exchange relation characteristic of locked-up type. Therefore both parts will make special efforts to design an exchange that has good continuity properties.

Property right literature has also an impact on the decision of vertical integration. Literature mentions property rights as an originator of variations in comparative costs of governance thus it shall considered while examining cost effective decisions made by governance structures. The integration of a supplier based on the directional ownership concept, found in the readings of Grossman and Hart (1986), underlines the residual rights of control therefore it is relevant which way the ownership goes. They challenge the usual view of vertical integration, in which unified ownership coexists and a common coordinator promotes investment and adaptation.

According to Hart (1990) the property right approach helps explain both the costs and the benefits of integration and in particular it shows how incentives change when one firms buys another one (p. 156). Nevertheless, his theories are based solely on physical and not human assets present in a contractual relationship.[23]

In order to explore the human asset aspect we consider Klein (1988) property rights approach. In his work, Klein states that "the control of physical assets can lead to the control of human assets referred as organizational capital" (p.208).

Klein et al. further investigate the issue of human capital; they infer that one cannot consider employees as property rights owned by a firm. Companies will work around this principle by buying and internalizing knowledge therefore creating vertical or lateral integration. This process will be ensured by a hiring process that will guarantee the "assets" are protected (Klein, Crawford, & Alchian, 1978). As a result, the conditions to elicit opportunistic behavior are pre-specified.

After revising the theoretical background we can now establish our null hypothesis:
We hypothesize that the greater the human know-how capabilities associated with managing (investing, advising, distributing, and structuring) hedge funds and private equity products, the higher the appropriable quasi rents at employee level derived from locked-up transactional situations and, therefore, the greater the likelihood of fragmentation.

[23] Hart proposes an emphasis on residual right of control, (if A buys B, A has residual rights of control or if B buys A, B attains the residual rights of control) and directional ownership

Contrary to transactional costs arguments, where the likelihood of vertical integration to occur increases with transactions involving specific assets, we found fragmented hierarchical construction traits where human-asset specificity skills such as advising and distributing were present. We assume a constant complexity of the service offer which is comparable in all firms, consequently missing the cost component of the transaction, making our case comparable to Lieberman (1991) sunk cost analysis where the probability of integration is contemplated as a function of sunk costs[24].

[24] Based on the assumption that the required fixed investment per unit of capacity was constant for all firms (and that it had already occurred in the past)

2. Tailoring governance structures to natural selection pressures

Environmental forces affect hierarchies and market interactions in their integration decisions. Firms react to external strains with adaptive mechanisms in order to achieve organizational balance. Therefore organizational transformation gives way to organizational fitness as firm's existing capabilities are improved or augmented with new capabilities in order to meet new challenges. Therefore organizational fitness is largely described as "the capacity to adapt organizational design, behavior and culture to fit new circumstances (Beer, 2002)".

Adaption to environmental pressures equates directly to organizational change (vertical integration). Barnett and Carroll (1995) classified organizational change in terms of process and content. The category focusing on the process of organizational change is concerned with internal operations and systems that serve as a catalyst for change, Wong- MingJi and Millette (2002) propose innovation and inertia, as the most important factors to induce change, Ruef (1997) observed that the process view is anchored in determinism[25] and on certain components of structural inertia. Authors that focus on *content* are concerned with the organizational features being modified (Tushman and Romanelli, 1985). Hannan and Freeman (1984) consider the content view as elements grounded on strategic choice arguments[26] mainly (1) organizational goals, (2) forms of authority, (3) core technology, and (4) marketing strategies.

Williamson (1998) NIE readings categorize in distinct levels the social analysis of institutional components which define environmental pressures and where adaptation is demanded. In a superior level, he situates the formal rules – the polity, judiciary, bureaucracy– which display property rights issues where ownership is relevant in deciding on the integration decision.

Coase (1959) defined property rights as vital for the private enterprise operations and as an enabler of superior economic performance. Applications of property rights in modern institutional economics include the systems of norms governing the acquisition or transfer of property (Furubotn & Richter, 1991) in all of its recognized categories, which include the right to use an asset, the right to appropriate the returns from an asset, and the right to change its form, substance, or location (Williamson, 1998, p.28).

[25]The doctrine that all events and actions are ultimately determined by causes regarded as external to the will.
[26] Strategic choice arguments must consider the class of organizational characteristics which would be modified as well as the environmental cirteria that forms the basis for judging optimality (or 'fitness').

Is in this level where first-order economizing gets the institutional environment right, therefore first-order economizing is produced by environmental pressures.[27] Nevertheless changes at this level are slow and difficult to orchestrate.

At a middle level, the institutions of governance are located. The legal system much used in the superior level is not considered. Here, private ordering is the norm where alignment of incentives between governance structures develops. At this level, transaction cost economics operates among discrete structural modes and second-order economizing applies getting the governance structures right with changes occurring gradually. Williamson describes connections between these 2 levels as follows "Taking the rules of the game at Level 2 (higher level) as shift parameters, Level 3 (middle level) deals with the play of the game." (Williamson, 1998, p.29)

The lower level includes neo-classical economics and embraces the concept of agency theory. The decision variables in both cases relate to the marginal analysis they set to describe. For our research, agency theory becomes important as it "deals with an efficient incentive alignment in the face of multitask factors or multi-principal concerns" (Williamson, 1998, p.29). Furthermore, it emphasizes important issues where the management of human assets prevents such cost effective alignments. Third-order economizing prevails, which make possible the correct attainment of the marginal conditions. In this respect we will further analyze the role of the human being as determinant factor in the alignment of transactions.

Taking a closer look at the middle level, the transaction cost approach has tried to address the subject of organizational adaptive fitness advanced by the population ecology model of Hannan and Freeman (1977)[28]. The model underlines organizational survival and resistance to change based on the firm capabilities to adapt. The transactional approach has analyzed the adaptive capabilities of firm in the context of commercial organizations, in which both product and capital market competitions are the sources of natural selection pressures (Key et al. 2005).

According to Williamson, "any issue that can be posed, directly or indirectly, as a contracting problem can be analyzed to advantage in transaction-cost-economizing terms" (Williamson,

[27] First-order economizing eliminates "bloat" wasteful practices, poor organization, and excessive organizational slack. For a given level of output, first-order economizing is the difference in cost between inefficient and efficient production. Second-order economizing reflects increased output as prices are reduced in line with improvements in efficiency, first-order gains accrue directly to the firm whereas second- order gains produce social benefits. (Williamson, 1994)

[28] For a detailed description pelase refer to Hannan & Freeman, 1977

1998, p.32). Literature conveys that the main purpose of TCE is that of adaptation therefore the rationale of TCE as an adaptive efficacy mechanism is an important factor to consider.

Organizations in general and financial institutions in particular are submitted to adaptability disturbances[29] of two kinds: institutional environment pressures and institutional arrangement pressures (governance modes). The first ones have to do with fundamental political, social and legal ground rules that establish the basis for production, exchange and distribution. The latter associate the arrangement between economic units which governs the ways these units cooperate and/or compete (Davis & North, 1971). We already made reference to the fact that uncertainty becomes the source of disturbances to which adaptation is required while frequency develops into reputation effects and setup costs.

In the study of institutional economics, which is central for our research, the institutional environment and the institutions of governance, "are joined by interpreting the institutional environment as a *locus of shift parameters*, changes in which parameters induce shifts in the comparative costs of governance" (Williamson, 1991, p.294).

As we already discussed, the institutional environment elicits parameter shifts in the forms of governance, in this case the human actor incites disequilibrium contracting to structures where transactions in which both mature products and products in stages of development are present. Added complications take place when innovation is introduced and a series of parameter shifts occur together.

In our case, given the nature of the product and the speed in which knowledge changes, not only the effects of weak property rights[30] accelerate the governance transformation, but the timeliness factor is fundamental. Williamson conceive real time responsiveness, with his denomination of the T-organizational form, where T denotes temporary or transitional or timely, estimates that "time can be crucial if a party expects to be a *player* when events are fast moving or if learning by doing is essential" (1991, p.292). Success and failure of firms which operate in newly developing markets where technology and rivalry experience rapid change are heavily influenced by flexibility in response time. "Best efforts notwithstanding, large, mature and diffusely owned firms are at a disadvantage to smaller, younger and more entrepreneurial (concentrated ownership) firms in these respects (Williamson, 1975).

[29] For our study we will not particularize on the types of disturbances (inconsequential, consequential and highly consequential) categorized depending on the magnitude of the deviation from cost efficiency. This would deviate from our original objective of not incorporating the cost factor to our study which simply attains to deduce the stuctural factors that produce them.

[30] Derived from faliures of proper application of norms governing the acquisition or transfer of property.

Williamson (1988) discloses the limits of transaction-cost economics that relate to real time issues, where an underdeveloped theoretical apparatus is still needed. It can be the case, that organizations need to craft "ad hoc structures that differ from those that would be recommended if real-time events were less pressing" (Williamson, 2008 p.11). Firms rely on alliances or joint ventures to make up for capabilities that could be built up internally, but are not, due to time responsiveness constraints.

An additional concern is related to the purpose of the developed structures. In most of the cases, "both successful and unsuccessful joint ventures will be terminated when contracts expire" (Williamson, 1998, p. 50). In the case of joint ventures, following an agenda dictated by human asset specificity, contracts are terminated once the combined effort of learning about a specific skill is achieved and mutual independence is considered viable. However the temporary supply issue is out of the scope of our research, our hypothesis concentrates with the long term existence of the new structure developed as a consequence of inflicted pressures.

With this in mind we gave the task to conduct expert interviews with the objective of evaluating possible sources of pressures in the financial landscape, which result in improved human capabilities and in the implementation of adaptive mechanisms by firms.

2.1. Procurement factors and the resulting human skill capabilities

We will start by giving an overview of the sample used, characterized by financial institutions with business units active in private equity and hedge fund management referred as investments in alternative assets.

Broadly, an investment is considered alternative if it has relatively limited investment history, is relatively uncommon in investment portfolios, has clearly differentiated features from any traditional asset class and *requires special skills to manage*. This non-traditional investments categorization comprises hedge funds, private equity, real estate investments, commodity trading pools and high-yield bonds. Other authors include as well art, antiques and precious metals under this category.

Several criteria are considered in order to delimit the differences between alternative assets and traditional assets. Return rates, risk levels, negative correlation to traditional assets, liquidity and transparence are the most commonly referred conditions (Kennedy, 2006, p. 36).

Alternative investments can contribute to a portfolio either in risk reduction or inducing higher returns.

As already discussed, the report will focus on the most common alternative asset type's hedge funds and private equity. Hedge funds[31] are typically organized as limited partnerships, in which the investors are limited partners and the managers are general partners. Investors to the partnership are charged a performance based fee which can be significantly higher than the fixed management fee.

The number of hedge fund managers is as exhaustive as the type of funds they can create using possible combinations of investment styles (market directional, corporate restructuring, converge trading and opportunistic), investment markets (global, US, Europe) and type of investment securities (equity, bond, commodity, currencies) in which they ultimately will invest.

Private equity is broadly defined as investments in unquoted companies; private equity is the universe of all venture and buyout investing, whether such investments are made through funds, funds of funds, secondary or direct investments. A private equity investment is "typically a transformational, value-added, active investment strategy" (Bance, 2004, p. 2).

A total of 12 interviews were applied to top executives[32] of Swiss and foreign financial institutions established in Switzerland. The interviewees represented the following financial institutions: Asset Managers, Investment and Private Banks, Consulting Firms, Security Dealers, Family Offices, Hedge Fund and Private Equity Mangers. The interviews were conducted in Geneva, Lausanne, Pfäffikon, Zug and Zurich.

In our framework we follow Williamson recommendation of joining the institutional environment and institutional arrangement in a single set of parameters denominated institutional environment (Williamson, 1991). Subsequently, we decided to classify all institutional environment parameters as intra-firm and inter-firm pressures. The first ones remain out of the participants managing realm and were categorized as (I) Regulation and investment schemes (Regulation), (II) Interactions between financial institutions, (III) Institutional investors (Clients) with its resulting performance adaptation of Type A (autonomous adaptive capacity to the market). The latter, inter-firm pressures which derive

[31] Hedge funds employ different types of strategies to generate returns. The return characteristics hold the key to distinguishing between hedge fund strategies (Fung & Hsieh, 1999, p.317). The most common strategies used by hedge fund managers are long/short, global macro, event driven, market neutral, arbitrage and emerging markets.
[32] Management positions such as directors, CEOs, CFOs, COOs, Managing Partners, Heads of investment and investment professionals.

transactions carried within the firm's governance structure were classified as (IV) Product development, (V) Performance adaptations of Type C (coordinated/cooperative adaptation induced internally) and (VI) Manager skills.

Both, intra-firm and inter-firm pressures are geared at obtaining cost economic outcomes, and in the course of our research towards acquiring improved human asset skills. We will consider how these interactions adjust in response to disturbances and must take into account that strains originated by consequential disturbances are prone to defect from the contracting status quo.

Each of the headings is analyzed in conjunction to the human skill capabilities (structuring, distributing, investing and advising) that shall obtain as a result of the inflicted interactions. Performance adaptation of "Type A" was inferred from the results gathered in the interviews, performance adaptation of "Type C" was directly measured from responses.

Of special importance to our work is performance adaptation of the cooperative type (Type C) since we analyze interactions at firm level where cooperative adaptation is realized. Type C is achieved through formal organization in which firms fill gaps, correct errors and effect efficient realignments (by reason of bounded rationality caused mainly by incomplete contracts) by means of *managerial skills*. We can then be able to measure the resulting gains in terms of capabilities acquired.

Figure 2 depicts alternative asset firms as entities "containing" knowledge capabilities accumulated in human factors subsequently constrained by institutional pressures. The institutional arrangement (integration or non-integration) materializes via cost-economizing interactions based on contractual relations between the market players. Based on our hypothesis the interactions follow the need to build-up on lacking human asset capabilities described as structuring, investing, distributing and advising skills.

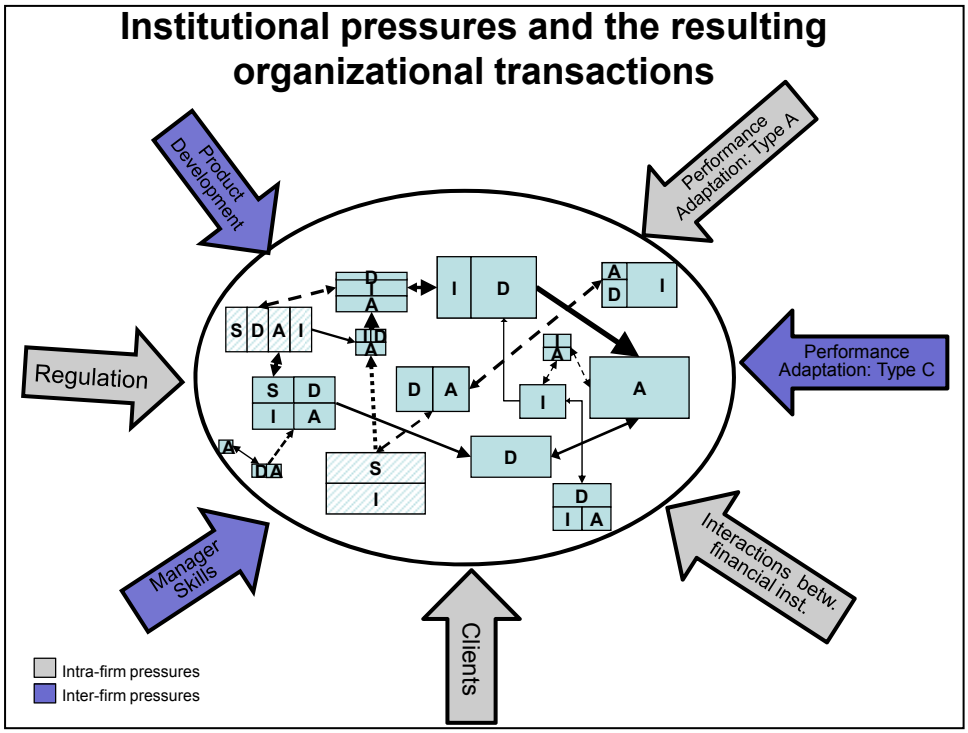

Figure 2 Institutional pressures and the resulting organizational transactions
Source: Original illustration

Elicited interactions/transactions of the interviewed financial industry players resulted in the following conditions. An abstract of selected conclusions are depicted by heading along with the obtained human skills[33]. We will start by illustrating inter-firm pressures.

Regulation and investment schemes (Regulation)

- Tighter regulation at all levels, as the industry evolves it looks for respect and trust through regulation even if such measures increase the price of the final product. On the other hand, managers have to fight against an overregulation tendency which damages the entrepreneurial flexibility and imposes hurdles to the investment process.

  Obtains advising capabilities.
- Establishment of vehicles with an offshore domicile to avoid EBK registration, reduce costs and express product launching time.

  Obtains structuring and advising capabilities.

Interactions between financial institutions

- Big banks, security dealers, distributors and brokers moving towards service boundaries previously reserved to hedge funds and private equity managers. Many of them in an attempt to obtain high fees funds of funds generate and to cover limited *in-house capabilities* which have deprived them form short term profits.

[33] For detailed results please refer to Appendix 2

Obtains structuring, distributing, investing and advising capabilities.

- Asset gatherers objective is to win market share as distribution becomes the consumption door for average products.

  Obtains distributing capabilities.
- The fine line dividing traditional and alternative assets will disappear.

  Obtains structuring, distributing, investing and advising capabilities.

Institutional investors (Clients)

- Investors imposing stringent requirements to managers such as transparency, primarily if returns are not met. Managers have to adapt with increased infrastructure to "service" new requirements. Equally institutional investors progressively demand more liquidity and competent exit strategies.

  Obtains investing and advising capabilities.

We presume that the inferred performance adaptation of "Type A", pondered as an "efficient mechanism for communicating information and inducing change" (Hayek, 1945, p.525) is instinctively set to work once the organizational equilibrium is exposed. The firm survival is then based on the efficient application of adjustments ingrained in attributes pertaining to adaptive capacity commands.

The following are the intra-firm pressures as well as the internal procurement adaptations carried out by institutions managing alternative asset products:

Product development

- The market demands innovation in product development with niche products, focused products and new structures which manage around liquidity constraints.

  Obtains structuring, investing and advising capabilities.

Performance adaptations

- Producers of alternative assets, primarily single hedge and private equity boutiques will deepen their *specialized knowhow* aimed at targeting focused deals and strategies. Most of them are interested in *remaining independent* and retaining control of their investment strategies.

  Obtains investing and advising capabilities.
- The skilled based nature of the alternative asset industry has given managers a "safeguard screen" against competitors. Specialized managers will survive more

comfortably *against the consolidation* of the industry since a *knowledgeable staff* is the most valuable resource in this business.

Obtains structuring, investing and advising capabilities.

- *Limits to consolidation* are still present in the form of "know-how barriers" based on *specific knowledge of investment styles*.

  Obtains investing capabilities.

- Allocators, relying on their *distribution capabilities* to attract assets quicker than small players, are looking actively to participate in a business which generates internal value through fees.

  Obtains distributing capabilities.

Manager skills

- Proficient manager skills are required in order to remain competitive the most important listed are the following: (1) *investment* capabilities to select managers and strategies, (2) *structuring* skills to place investments in the right structure, (3) *distribution* skills to easily reach the customer, (4) client value added services such as *administrative* support. This last point evolving towards the direction of tailored services.

  Obtains structuring, investing and advising capabilities.

We conceive the managerial skills factor (human asset specificity) as a decisive evaluative variable which induces efficient realignments of the previous factors. Therefore, answers of this heading compile results in terms of actual capabilities acquired.

TCE proposes the transaction as unit of analysis not only to describe the exchange in the market, but as an internal analytical measurement where "transactions can be broken down into decomposable subsystems" (Simon 1962). As a consequence each make-or-buy decision can be redirected to the market (buy) in case it is regulated by an interim contract or to an organization (make) if it is regulated by an intra-firm contract. Simultaneously is necessary to name the critical dimensions with respect to which the unit of analysis differs[34], in this case the human asset specificity attribute with its cognitive and self-interest characteristics.

In a multidimensional diagram depicted in Figure 3, the internal capabilities of alternative assets firms or business units illustrate how cost economizing transactions build up into human skills which in turn result in redefined institutional constructions as each firm responds to the

[34] Frequency, uncertianty and or asset specificity.

adaptability disturbances. This "new institutional construction" can be identified as a fragmented or a consolidated entity after the make or buy decision has been taken.

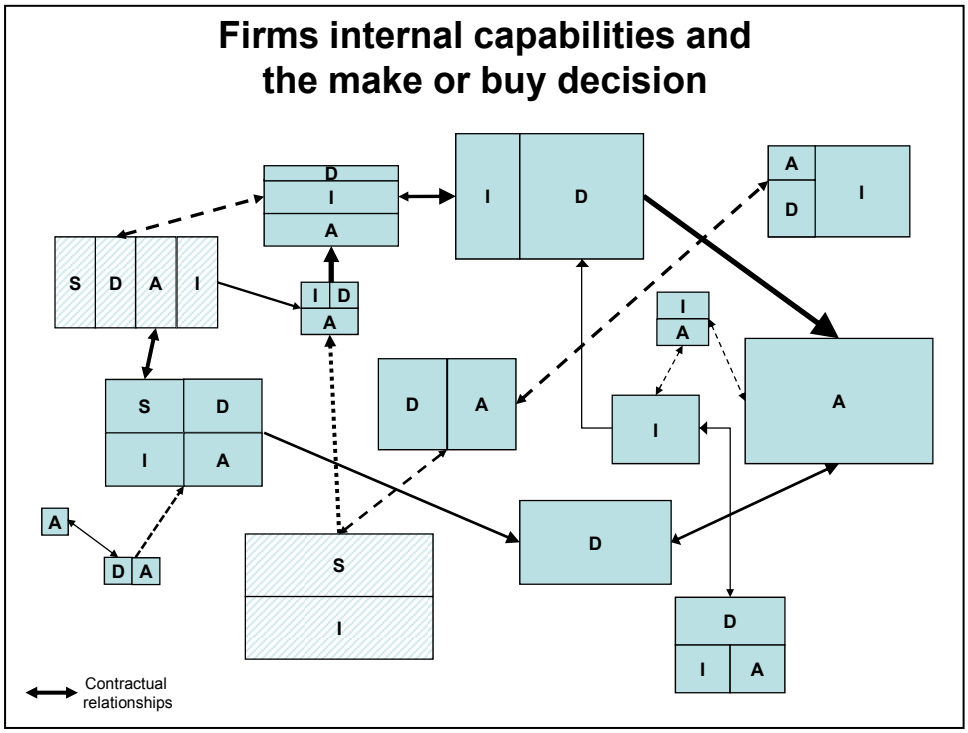

Figure 3 Firms internal capabilities and the make or buy decision
Source: Original illustration

The determination of the make or buy decision is heavily influenced by the resource based view mostly advanced by Penrose (1955, 1959) which considers limitations of growth and motivations for expansion/diversification as drivers for inducing strategic management actions.

Penrose cite the internal management resources as the main limitation for growth; in which shortage of labor or physical inputs and lack of managerial capacity are important constraints. In Penrose's theory 'management is "both the accelerator and the brake for the growth process". Companies grow in the directions set by their capabilities and these capabilities slowly expand and change (Mahoney & Pandian, 1992, p.366-367).

In Penrose' analysis, velocity and capacity are deem as the key motives for expansion. In his view, business units experience different operating rates which create an internal incentive for growth. In this regards, unused resources, especially human expertise, may drive diversification[35] (Farjoun, 1991). Generally speaking, the direction of a firm's diversification is

[35] A diversified firm has the advantage of exploiting the potential of knowledge because it can achieve economies of scale and scope by leveraging a core set of knowledge across multiple businesses (Grant, 1996).

directed by its available resources and the market opportunities present in the economical environment.

Defining firms as administrative organizations and collections of physical, human and intangible assets, Penrose argues that "unused productive services of resources shape the scope and direction of the search for knowledge". He describes this practice as a "virtuous circle" in which growth must be accompanied by specialization, but specialization requires growth and diversification to fully utilize unused productive services. Thus, specialization induces diversification (Penrose, 1959, p.73-77).

It is also important to mention that firm-specific resources derive further diversification. Specific resources deliver comparative advantages at firm or business unit level, which much likely will yield rents (Penrose, 1959).

Additional determinants of vertical integration are to be evaluated before electing between the make-or-buy binary construct. Perhaps the decision about which trade-off to exercise, between the benefits of added coordination/cooperation on the one hand, (predominantly present in hierarchical structures) and the costs of added bureaucracy on the other is what defines the optimal mode of governance. "Which way that trade-off goes depends on the attributes of transactions in relation to the costs and competencies of alternative modes of governance. This is an exercise in discrete structural analysis, whereby alternative modes of organization are described as syndromes of related attributes – distinctive strengths and weaknesses that cannot be replicated" (Williamson, 1998 p.44).

Therefore relying on replication and selective intervention instruments[36] to decide on a reasonable governance structure is not feasible; the size of the company will have an influence with respects to the incentive intensity mechanisms applicable, moreover selective intervention "is fatuous (absurd) because it is unenforceable" (Williamson, 1998 p.44).

The concept of agency theory was exposed previously in relation to efficient incentive alignment issues and the perception awarded to human capital as hinderer of cost effective alignments. The application of the concept to vertical integration is provided by Holmstrom (1996). He emphasizes the shift of forward integration into distribution, where the decision of establishing an in-house office or an independent distributor is "a function of the difficulty of measuring a

[36] Replicating the exact inputs as competing firms, and intervening only for a good cause.

sales person's performance" and the complexity of measuring the quality aspects of the transaction. (Williamson, 1998, p.35)

In his conclusions, Holmstrom regards agency theory and transaction cost economics as complementary approaches. He further underlines the need of agency theory to move away from efficient risk-bearing and undertake the make-or-buy issue, supporting inter-firm contractual hazards, present in the transaction cost economics approach.

2.2. Alternative assets value chain

Transaction costs are of central importance for defining the boundary of the firms and markets, to establish the appropriate structure of the firms, and to define the nature of contractual relationships between firms *at different levels of the production chain* (Joskow, 1988).

In view of this remarks, it is essential to consider theories of supply chain management (SCM) with its convergences and discrepancies with TCE theories. We must first mention that by definition "TCE examines individual transactions separately, while SCM[37] introduces a broader system perspective in which related transactions are grouped and managed as chains" (Williamson, 2008, p.5). Hence, the boundary of the firm is considered differently by both disciplines and is where the main theoretical variation resides. Ramifications from this matter give rise to ambiguous metering conditions of SCM grouped transactions.

Furthermore buffer inventories are consider relevant in the SCM literature. "In the degree to which buffer inventory outages (or quality defects) at any stage in the supply chain ramify across other stages, the boundary of the firm could sometimes differ by reason of SCM considerations" (Williamson, 2008, p.14). On the other hand, we have already mentioned that TCE aligns transactions with modes of governance as to produce a transaction cost economizing match, where buffer inventory differences are completely ignored.

The obtained interview results were additionally analyzed and categorized considering the limitations prescribed by the above mentioned theories of TCE and SCM. As a result, the cost economizing interactions of the market players were depicted in what we denominated the Alternative Assets Value Chain Model (See Figure 4).

[37] The key processes through which SCM works include customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, and product development and commercialization (Williamson, 2008, p.13).

Here the achieved capabilities described as structuring, investing, distributing and advising skills derived from the transactions result in a redefined institutional construction as a response to the adaptability disturbances. This institutional construction can be identified as a fragmented or consolidated entity.

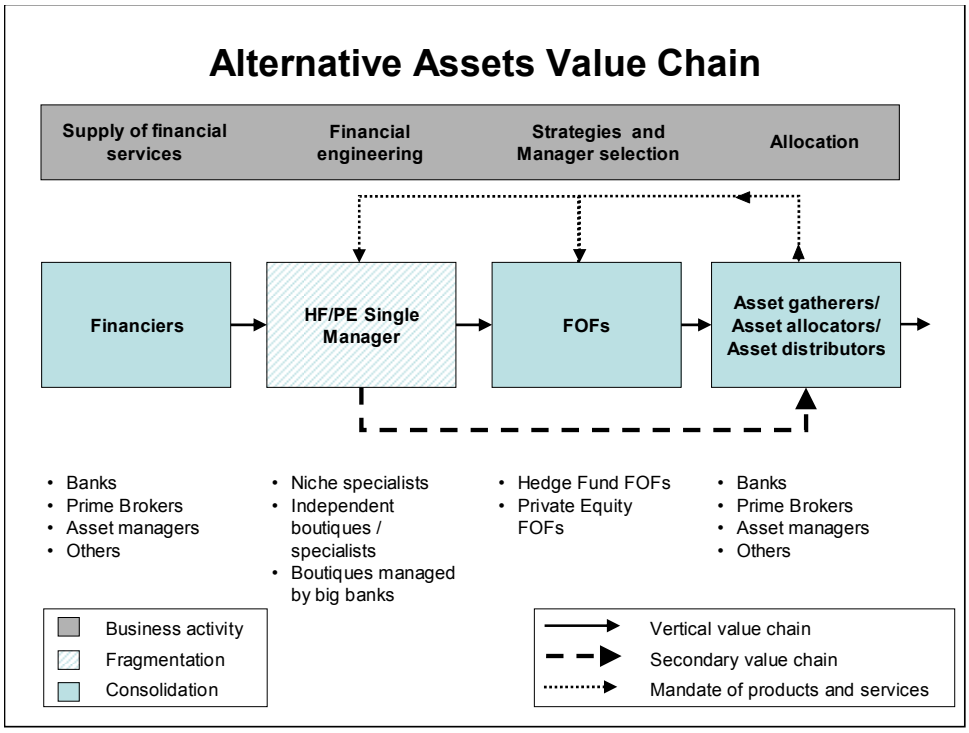

Figure 4 Alternative assets value chain one-dimensional plane
Source: Original illustration

The rationale behind the scheme relates to our hypothesis in which we assumed that the greater the human know-how capabilities, the higher the appropriable quasi rents derived from locked-up transactional situations and therefore, the greater the likelihood of fragmentation. The results withdrawn under the performance adaptation heading further supports our proposition. Interviewees relate knowledge and capabilities as a cause of fragmentation.

We defined the alternative assets supply chain as a networked system where players may perform several roles simultaneously. The commonality of the players is that in a given situation all can present capabilities supporting the alternative asset management. Nevertheless, each member of the supply chain has distinctive characteristics and skills which profile them either as suppliers of financial services, financial engineers, selectors of managers and strategies and allocators. [38]

[38] Another business activity encountered was fund administration. Although the primary job of the administrator is to calculate the fund's NAV (Net Asset Value) and manage its investors, its role has evolved into a more

The obtained results are collected in the following tables. They represent the profile of each group heading[39] as well as the inflicted cost economizing interactions and the expected structural outcome, which can also be referred to as institutional construction. Interview data is associated with factual descriptions of each indentified structural construct.

Suppliers of financial services	
Description	This financial activity is conducted mainly by prime brokers, but banks, insurance companies and sources of private equity provide also funding to hedge fund and private equity managers. By doing so managers are able to concentrate in their core business and outsource to other financial institutions the consuming and expensive aspects of running a fund. Financiers will provide leverage at a different level depending on the type of manager they service, be it a private equity manager or a hedge funds manager. In the case of hedge funds they finance the product itself, which are the investing positions of the investor and will subsequently provide clearing and custody services. In the case of private equity managers the leverage is directed to the companies which are incorporated in a product.
Transactional measures	Suppliers of financial services will continue to provide leverage to hedge fund and private equity single managers but will see an increased competition from allocators and fund administrators. In an attempt to drive down this competition leverage activities will follow a consolidation trend.
Outcome	Consolidate

Table 5 Suppliers of financial services

Financial engineers	
Description	Essentially the architects of the alternative asset industry, they engage in the production of investment vehicles. In the case of single hedge fund managers, their main function is to narrow investment strategies focused on only one sector of the economy or on one segment of the market using sophisticated risk management techniques to control risk. They tend to use leverage indiscriminately, sometimes using to up to 10 times their net asset base to support their strategies (Anson, 2006, p. 34-36). There are a number of hedge fund managers which have opted for specialization. By doing so, they concentrate in pursing specific strategies on specific markets. Confirming that the hedge fund industry considers itself to be skilled-based building up their strength in specific niche products. The case of single private equity managers their objective is to invest in unquoted companies with the intention of providing long term equity base and working capital. The targeted companies are managed actively; managers expect that the private stock purchased will go public or that public companies for which they provided capital may go private thus realizing capital gains. Private equity managers specialize in different private investing strategies: venture capital, leverage buyouts, mezzanine financing and distressed debt. In the case of venture capitalist firms' specialization is further delimited by industry, geography and stage of financing. Specialization in investment focus has been promoted by the managers need to distinguish themselves from other funds (Anson, 2006, p.407-409), moreover it allows them to produce value while investing in a more profitable way.
Transactional measures	Producers of alternative assets, primarily single hedge and private equity boutiques will be the manufacturing brains providing specialized skills to the industry. For hat same reason financial engineers will further fragment following the industry needs for specialists to target focused deals and strategies. The skilled based nature of their business will protect them against consolidation.
Outcome	Fragment

Table 6 Financial engineers

[39] Categorized based on interview results.

Managers and strategies selectors	
Description	Managers and strategies selectors are organized mainly as fund of funds. As a pooled fund vehicle, a fund of funds manager evaluates, selects and allocates capital amongst a number of shortlisted funds. Investors seek broader exposure and risk diversification. However, investors in funds of funds need to balance the extra layer of performance and management fees. A proficient fund of fund characterizes itself for being a skillful manager selector; they support their investment decisions through industry and management skills, expert teams, sustained performance and consistency proven by several business cycles. The importance of manager selection goes beyond the criteria and selection process employed. Fund of funds must also be proficient as to how much money to award managers and when shall it be granted. Fund of funds managers must align skills with the strategies they pursue. A fixed income manager needs to have significant quantitative capabilities to analyze all the different bond market sectors, while the small cap equity managers investment process would tend to be much more qualitatively oriented.
Transactional measures	Strategies and managers selectors, in the form of fund of funds, will mainly follow a vertical integration into allocators since their knowledge attributes can be easily replicated. This will occur thanks to the capabilities of the former to attract assets easier. The FoFs who survive consolidation will shift the distribution of their products to asset allocators.
Outcome	Consolidate

Table 7 Managers and strategy selectors

Allocators	
Description	The final connection in the value chain is the allocators. Asset allocation is generally defined as the allocation of an investor's portfolio across a number of asset classes (Anson, 2006, p. 34-36). In many cases allocators outsource production capabilities to alternative asset specialists and in return they act as managers of third party products including the products derived from mandates. Even if they rarely produce internally, in the long run they will assure a significant part of the market share since they own the distributions channels needed to access a greater customer base. In the context of our study we define as allocators all financial institutions performing one or several of the following activities, gathering, allocating or distributing assets for clients investing in alterative instruments.
Transactional measures	Allocators will be interested in absorbing fee generating businesses and cover for limited in-house capabilities. To fulfill their objective they will foment a consolidation wave either by incorporating boutiques to their internal organizational structure or by acting as distributors through open and guided architecture platforms. This last option will follow the natural evolution of the industry which gradually moves from production towards distribution resulting in an "asset gatherer market".
Outcome	Consolidate (revision of effective integration is needed due to capacity constraints derived from the inability of managing investments with the current number of employees)

Table 8 Allocators

2.3. Directionality of integration and non-integrative considerations

Until now we have considered the determinants of integration along with its supporting theories and explanatory arguments. Nevertheless, the logic and the direction of integration dictated by demand variability, risk aversion and contracting hazards (hostages) must be described.

The first interrogations we must inspect are related to the direction of the integration. *Is backward or forward integration the appropriate contracting form?* Purchase of suppliers, in order to reduce dependency has been the logic towards the backward contracting scheme. Nevertheless, forward integration also has its propelling advantages. It grants the control of the direct distribution of products or services, so companies can develop strategic measures to induce market penetration.

Mahoney & Pandian (1992) review that "the firm's current resources are the primary influence in managerial perceptions; hence the direction of growth is a cognitive proposition that reinforces the economic rationale that a firm's resource profile will influence the direction of diversification" (p.365).

Diversification as defined by (Ramanujam and Varadarajan, 1989) offers the following explanation: The entry of a firm or business unit into new lines of activity, either by process of internal business development or acquisition, which entail changes in its administrative structure, systems, and other management processes.

Directionality of the integration/diversification process must not be forgotten. Lieberman (1991) discusses extensively the issue of demand fluctuations in relation to asset specificity where large sunk investments play an important role. He assumes a backward integration in cases where a downstream firm must commit to considerable sunk investments in transaction specific assets. "In case of failure to integrate, the rents associated with these assets can… be appropriated by the upstream supplier" (p.452). The empirical section will try to contradict this assumption in relation to the studies proposed by Monteverde and Teece (1982).

Demand variability and risk aversion are factors of vertical integration we did not consider in our hypothetical assumption, but nevertheless relevant to the treaty of integration. We are aware that industrial organization has strong contributions in this respect by the hand of Carlton (1979), Blair and Kaserman (1983) and Perry (1984)[40].

Carlton introduced a model in which firms integrate to minimize the total costs attributable to demand fluctuations. Blair and Kaserman developed a model that assumes risk aversion on the part of the firm. In the Carlton model, "backward integration becomes more attractive as the variability in input demand rises, assuming that this upstream variability is uncorrelated with fluctuations in the firm's downstream market. In the Blair and Kaserman model, integration is

[40] Perry introduced perfect competitive markets where economies of vertical integration can be offset by price regulations in intermediate goods by independent firms.

discouraged by demand variability that is correlated between the two markets. Thus, the models differ in the type of variability that is relevant as well as the direction they effect" (Lieberman, 1991, p. 454).

Variability in downstream demand may reduce incentives to integrate (Harrigan, 1983). This statement proposed by Harrigan, adds to the connotation that volatile industries will tend to avoid integrated activities.

Hazards relating to asymmetries of information are also prone to delimit the directionality of the integration. Asymmetric knowledge generates one sided contractual refinement with skewed perspectives gains in favor of the proposing party, while the counterpart is unable to ascertain the true ramifications. The situation balances as the vulnerable party responds with a refinement proposal of its own where the asymmetry runs in the other direction (Williamson, 2008).

In the case we set to examine, knowledge asymmetries are present at individual level extrapolating to the overall firm's accrued capabilities. Managers (employees) hold industry skills which we assume are applicable to standardized procedures and semi-standardized products. The *human "nontransferable" skills* will help the manager build relationships with the principal (firm) on the one hand, and with its portfolio of clients, on the other. Both the knowledge and the relationships are to a certain extent asset specific (TCE theory) to the company and specific to the manager. Key relationships between manager and client created through knowledge becomes extraordinarily crucial, in this case the client exhibits loyalty to the manager and not to the principal. Additionally opportunistic behavior attains and the employee most likely will opt for independence or not to further integrate. Given the skilled based nature of the hedge funds and private equity business the knowledge will be used as an isolating mechanism against consolidation.

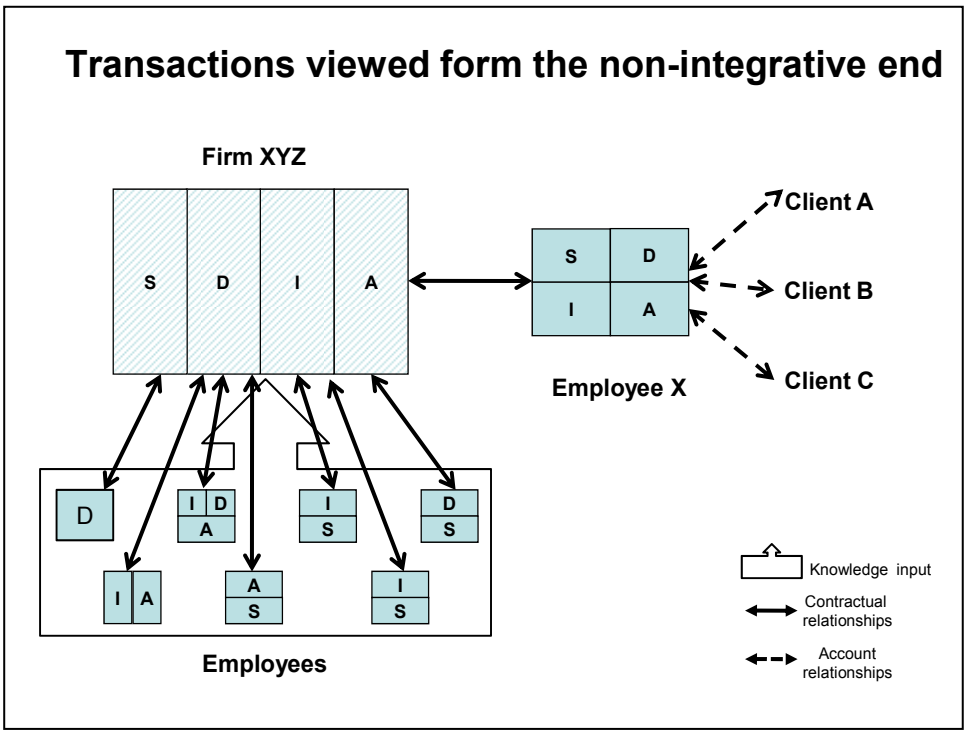

Figure 5 Transactions viewed from the non-integrative end.
Source: Original illustration

Figure 5 illustrates the capability levels of financial institutions and manager opportunistic behavior conduct. It exemplifies the above mentioned situation, in which employees with different -*human "nontransferable" skills and knowledge*- provide structuring and/or distributing and/or advising and/or investing services –*a standardized procedure*- intended for promoting single (SHF) and fund of funds hedge funds (HFFoFs), as well as in single (SPE) and private equity fund of funds (PEFoFs) –*which are semi-standardized products.*

Individual knowledge, which is used as isolating mechanism and generator of quasi-rents, is concentrated (accumulation of knowledge) at company level through a contractual relationship derived from "the condition of bilateral dependency that builds up as human asset specificity deepens" (Williamson, 1991). The strength of the relationship intensifies by the process of learning by doing, and the firm will procure knowledge by applying incentive mechanisms supported by the agency theory set-up[41]. According to TCE, as skills are deepened and specialized to particular employer, the employer and the employee will have a particular

[41] Agency theory is a theory of the employment relation in which output is jointly determined by the state realization and the effort expended by the agent. There is a need to induce efficient effort expenditure across multiple tasks as complications by reason of asymmetric information and risk aversion arise (Williamson, 1998, p.33-35).

interest in continuing employment relation. If the relation is terminated productive value will be lost.

On the other hand, key relationships between the individual employee and the client intensify, creating unbalanced loyalty where the principal is disregarded. Additionally, the possibility that employees will act in a self-interested way by means of opportunistic behavior becomes evident. In this case, human actors will elicit defection avoiding renegotiation, meaning that the available rent creating resources, knowledge, which holds comparative advantages, will serve as a motivator for managers (employees) to expand into a different or new hierarchical structure. Consequently these transactions are viewed from the non-integrative end. In our case, the relationship level between employee and customer could not be captured, therefore the effects of such a relation on the integration process was not included in the empirical analysis. Moreover, traces of demand variability as proposed by Harrigan were not measured for the alternative firms under study, leaving its investigation to further studies.

The non-integrative transaction process previously portrayed can be challenged by the non-separability theories. The boundary of the firm, in agreement with the assumption of technological non-separability operating throughout the firm, produces organizations which are indecomposable. Under this presumption, firms are defined by clusters of nonseparable activities working under real time coordination. Nevertheless, "this concept does not scale up and it is therefore not applicable to the modern corporation" (Williamson, 2009, p.152) which we are analyzing.

We need to adjunct scaling up considerations in order to define the boundary of the firm and its outbound ramifications. For that reason, applying the boundary of the firm as described in TCE (that is by aligning different transactions with governance structures in a discriminating way) we must consider the "technological core as given and analyze in detail the separable make-or-buy decisions, be it backward, forward and lateral – to ascertain which should be outsourced and which should be incorporated within the ownership boundary of the firm. So described, "the firm is the inclusive set of transactions for which the decision *is to make rather than to buy*" (Williamson, 1985, p. 96–98).

There is also an economical need to examine how "individual parties to exchange *contract out of or away from* the governance structures by devising private orderings". The main objective is to interpret the economic benefits that accrue to specialization and exchange (Williamson, 1983, p.520).

Private ordering is implicitly featured in self-enforcing agreements, dependent on continuation by both parties, if one of the parties fails to fulfill the contract, the counterpart will react with the termination of the agreement.

Contracting agents are subject to bounded rationality and opportunism, but the concept of hostages can be exploited by one party as a condition for supplying product. In this context, hostages are used to support exchange. If it is the case, the stronger party exercises power by demanding a hostage in support of specific asset investments from the weaker counterpart, who accedes because he has no other possible option (Williamson, 1983). Hostages pose both ex ante (screening) and ex post (bonding) effects which damage the contract execution. [42]

Along the ex ante contracting conditions, the prisoner's dilemma[43] must also be contemplated. "Cooperation is widely thought to be frustrated by the relentless logic of the prisoner's dilemma; ….defection can be deterred if payoffs are appropriately altered" (Williamson, 1983, p.537-538). Therefore incentives and controls must properly anticipate contractual hazards in order to adapt efficiently.

As contemplated above, breach to contract can follow a hostage condition, a prisoner's dilemma or an opportunistic behavior situation. Several possibilities have been listed in Williamson (1984) readings as direct amendments of contractual failure. The most relevant for our case are the following: "1) expansion of the contractual relation by developing suitable reciprocity agreements and 2) consolidation of the transaction under common ownership, which is a vertical integration alternative" (1984, p.490).

2.4. The complexity of hybrid organizations

Until now we have centered our attention on the transactional applications exhibited on hierarchal structures (firms) which are used as sample in our empirical analysis. However we must review the possibility that more complex transactions in the form of hybrid modes are an intermediate option in which joint ventures are the prime contenders.

[42] Additionally to the hostage creation hazard, expropriation and prospective maladapation conditions shall be considered.

[43] Participants have the incentive not to cooperate independently, but collectively they would be better off if they did cooperate. This tension between individual incentive and collective incentive is what makes the Prisoner's Dilemma intriguing.

Time limitations determine the development of the appropriate ad hoc hybrid structure. Alliances and joint ventures are the implemented contractual choice for making up for specific capabilities that could be built up internally if time permitted. (Williamson, 2008)

TCE literature exemplifies the contractual interchange within structures with hybrid attributes in which investments in specific assets are required. This contractual interface presents more complex transactions compared to those taking place at the market and at hierarchical structures. For that reason a mediating mechanism for hybrid transactions is proposed. The leading styles contemplated are (1) muscular, (2) benign, and (3) credible (Williamson, 2008).

The muscular approach to the outsourcing of goods and services, for which investments in specific assets are made, is myopic and inefficient. It is mean spirited and power is used by the stronger party to fulfill its productive needs. On the other hand, the benign approach relies on cooperation, where trust supplants power. Reputation effects guide transactions, but its failure can lead to forfeit mutual gains unless countervailing measures were previously put into place. Finally, the credible contracting approach is based on the premise that all complex contracts are incomplete and that cooperative adaptation is needed. This conveys parties to exercise feasible foresight with the objective of mitigating possible hazards (2008, p.10-11).

Even if different types of outsourcing contracting coexist, one has to consider possible distress between the parties. "Factors that contribute to such disappointment include: (1) failure to correctly asses the comparative efficacy of self-supply versus outsourcing at the outset (2) a failure to provide outsourcing with the requisite supports (3) propensity to look for a scapegoat whenever things go badly, even if no superior feasible alternative can be described and (4) the possibility that conditions have changed, such that an earlier decision should be reversed" (2008, p.13).

In the hypothetical argument we challenge, real foresight must be implemented (motivated by bounded rationality in which human actors are assumed to have the capacity to look ahead, recognize hazards, work out the mechanisms), nevertheless literature specifies *ex post* validations of accomplishments, in which determining the efficacy of self-supply versus outsourcing is imprecise. In spite of, we will try to determine empirically the best combinations of comparable variables which would lead to an efficient evaluation of the make or buy decision ex ante.

We are confident that the most appropriate solution for human asset specificity for the particular financial products we refer, is that it must be organized internally (hierarchical structure) due to the coordinated adaption needs which build up as knowledge becomes non transferable. In this regards, Williamson reviews that "as needs for coordinated adaptation build up, the efficacy of hybrid contracting is compromised" (2008, p.11).

3. Measuring human asset capabilities in alternative asset managers: an empirical model

We depart from the original idea of vertical integration where the main objective is to define the dichotomous decision of make (integrate) or buy (fragment). In our case such decision is based on a polychotomous construct attained by the concentration of capabilities (self description) at a firm level which derive an observed level of non vertical integration (OLNVI). Structural conditions (predictor variables) help to discern the probability of the outcome.

We avoid the assumption that in cases where non-fragmentation is recognized, automatically means an integrative result of the firm being analyzed. In case we wished to work along the lines of the construct used widely in literature, a longitudinal design shall be employed and a time framework limit shall be stipulated in order to report on the observable transactions. For our empirical analysis we used a cross sectional design due to design methodology employed and the type of data acquired.

Contrary to TCE predictions which explain the particular structure of a firm, most importantly, the extent to which it will integrate vertically, our empirical analysis illustrate that hierarchal structures where human-asset specificity skills, will tend to depart from the original hierarchical structure. Williamson argues that where transactions involve assets that are only valuable (or are much more valuable) in the context of a specific transaction, transaction costs will tend to be reduced by vertical integration. According to TCE, the more specific the asset, the more likely is vertical integration to be the optimal solution.

In the case we propose, we observe in the qualitative analysis discussed in section 2, exactly the opposite happening within the alternative asset firms established in Switzerland. Our initial analysis shows that hierarchal structures where human-asset specificity skills such as advising and distributing are displayed reflect institutional characteristics with likelihood towards a fragmented structure.

Due to the nature of the asset management business, the opportunistic behavior incentivizes the skilled managers to work independently, with the sole objective of retaining the management fees generated in-house. Managers are aware that integrating to another firm (conglomerate) represents “sharing” non-transferable knowhow, consequently distributing the profits generated through this skill.

"What are the structural conditions (independent variables) that make consolidating or fragmenting rational or attractive?"

In order to further describe our case, we need to measure empirical variations (site specificity, physical asset, human asset, dedicated assets) between a set of variables to understand the consequences on structural relationships. According to Joskow (1988), the theory of vertical integration suggests thinking of the primary dependent variable as an indicator of the organizational mode to be chosen by the parties to the transaction: vertical integration, long-term contracts, or spot market trade, while the measure of asset specificity is reflected on the independent variable. "Other things equal we expect the parties more frequently to choose vertical integration or a long term contract *as the quasi-rents associated with specific investments become more important* and the associated benefits of precommitment increase. Independent variables, measuring "internal organization costs, scale economies, experience, and so forth may tip the balance back toward contract or spot market mechanisms" (p. 105-106). He questions the possibility of assessing no integration using the same methodology.

Recent empirical research has proved the casual relationships between transactional characteristics and institutional arrangements. In his writings, Joskow poses questions that review the nature of the trading relationships; he is especially concerned with successive performance measurement, with the conditions that derive efficient trading relationships, and with the resulting advantages of institutional arrangements of the vertical type.

We applied the approach narrated by Joskow (1988), with empirical cases advanced by Monteverde and Teece (1982), Levy (1985) and Lieberman (1991) to solve our case. We will keep as key independent variable variations in asset specificity in the form of human skills, represented by indexes. We will also rely on Joskow remarks as advice to solve the equation "the best we can hope for is more qualitative information on variations in the importance of asset specificity" (1988, p.106).

Shelanski and Klein (1995) summarize the TCE framework in empirical terms as a variation of the following basic model. The efficient form of organization for a given economic relationship—and, therefore, the *likelihood* of observing a particular organizational form or governance structure—is a function of certain properties of the underlying transaction or transactions: asset specificity, uncertainty, complexity and frequency (Shelanski & Klein, 1995). In this regards Masten (1984) concludes the following: "the choice between internal and external organization

and, in the event of the latter, the choice of contract terms have been related to several critical parameters of the transaction (asset specificity, uncertainty, complexity and frequency)" (p. 403). Accordingly in our model composition we will analyze the know-how skills derived from human asset specificity in an indexed form as a proxy for a fragmented outcome.

Unit of analysis and Hypothesis

We have already discussed the implications for TCE in defining the common unit of analysis, the choice of unit of analysis differs according to the theoretical background employed[44], being the most common terms used in literature transactions (between modes of governance) or routines such as role, managerial processes, decision premise (Simon, 1957), decision rules (Mahoney & Pandian, 1992), product line[45] (Anderson & Schmittlein, 1984) and individuals (Leibenstein, 1966). In our case we chose the human-asset specificity transaction between firms as unit of analysis. Still some questions remain to be treated, the most significant posed by Williamson (2009): Can a common unit of analysis be applied to each mode of governance?

It is important to point out opposing literature documenting institutional purposefulness and the choice of the unit of analysis. We encounter conflicting arguments between TCE and X-efficiency regarding the appropriate unit of analysis to be employed. As previously discussed, Commons (1932) indicates the transaction as the ultimate unit of analysis while X-efficiency based on Leibenstein's (1966) assumptions, refers to individuals, as the appropriate level of analysis. We can only bring together both postulations applying Williamson (2002) qualifying transaction attribute based on human asset specificity. The ultimate association between the 2 assumptions is based on the human factor attached to them.

In the previous section, we stated that a common consequence of specific investments is that the condition of bilateral dependency builds up as asset specificity deepens (Williamson, 1991). Consequently specialized assets lose productive value when redeployed for better uses and users. When this happens, it creates a measurable opportunity for firms (hierarchy) to evaluate the incurring costs of the transaction. However, those costs may be more than offset by the bilateral adaptive gains that result. After realizing positive reputation effects, firms will tend to increase the bilateral dependency relation. On the other hand, if assets are nonspecific, markets enjoy advantages in both production and governance costs; static scale economies can be fully

[44] The unit of analysis for the behavioral theory of the firm and for evolutionary economics is the routine. The unit of analysis for transaction cost economics is the transaction. (Williamson, 2009, p.151)
[45] The unit of analysis is the product line of individual firms sold into specific sales territories.

exhausted by buying instead of making and external procurement avoids many of the hazards to which internal procurement is subject (Williamson, 1981, p. 558).

Departing from the above mentioned argument advanced by Williamson we assume in our hypothesis that the high concentration of human-assets specificity, in the form of skilled based capabilities, present in the financial institutions under study managing single investment instruments will lead to fragmentation, that is, the *buy option* of vertical integration, since employees act on behalf of the firm and accumulate opportunistic behavior.

Simon (1985) describes human actors in more realistic terms by stating that "nothing is more fundamental in setting our research agenda and informing our research methods than our view of the nature of the human beings whose behavior we are studying" (p. 303). More generally, the awareness among sociologists that "organization has a life of its own" (Selznick, 1950, p. 10) serves to uncover a variety of behavioral regularities. In this context, employees at an organization act and react in behalf of organizational entities provided of structural guidelines and might use cognitive mechanisms (opportunism) to attain their personal objectives.

As we previously discussed, employees poses nontransferable knowledge that attain asset specific characteristics. The human asset specificity component will have a direct influence on the make (fragment) or buy (integrate) decision. The outcome, judged through the lens of the employee will favor the *buy result.* Managers working for alternative asset businesses will opt for the development its own production capability suggesting the procurement of the service through an independent outsourced entity. The new entity will be managed by ex-employees of the firm; the skills developed by learning by doing will be used as competitive advantage derived form the isolating mechanism called knowledge. The firm will not be able to adequately compensate in the short run for the lost in house capabilities. The quasi rents generated by knowledge become a strong stimulus to defect.

Therefore we can conclude that even if assets are specific, by means of opportunistic behavior, employees acting in behalf of the firm, will chose the buying option which translates into breach of the contractual relationship with the employer. Employee's rationale is to become an independent outsourcing entity as the motivation to produce internally decreases with concentration of non transferable knowledge and skills and the low initial investment costs. As we stated above, another key element to defect is the loyalty established with its portfolio of clients, a key element in the alternative asset business.

As a result our hypothesis proposal is the following:
Ho= Non vertical integration (fragmentation) is most likely to occur (hence the multinomial choice model) at business units or firms who describe themselves active in diverse range of services (Advisor, Intermediary or Investor). We speculate that a concentration of services supposes the accumulation of human skill capabilities. Therefore firms with greater human know-how capabilities (concentration of structuring, distributing, investing and advising skills) in managing single alternative instruments will present higher appropriable quasi rents[46] at employee level, and consequently will increase the occurrence of non vertical integration. This hypothesis is based on the assumption that fragmentation or consolidation has not yet taken place.

Having formulated the hypothesis the following research questions had to be addresses:
Do firm's internal knowhow capabilities improve the likelihood of fragmentation?
If so, what are the structural conditions (independent variables) that make consolidating or fragmenting rational or attractive?

Based on the above mentioned assumption we established the empirical framework. The choice model will rule out the significant activities guiding towards a non integrative outcome.

3.1. Data

A survey was developed in order to numerically measure the degree of human capabilities obtained by means of transactions and the proposed fragmentation effects at an individual firm level. As we already mentioned, the resource-based perspective helps in analyzing the firm at individual level, based on the assumption that each heterogeneous firm yields rents produced by individual isolating mechanisms.

The purpose of the empirical analysis is to uncover what dimensions (predictor variables) influence firms with high levels of asset specificity to obtain a shift directed to fragmentation.

The empirical analysis was conducted using firm data obtained from PSEPS, SBA, SECA, SFA, SNB, SVV and Industry Journals[47] listings.[48] The records comprise Swiss and foreign financial

[46] derived from locked-up transactional situations between firm and employee
[47] Hedge Fund Journal, Hedge Funds Review Magazine, Euro Hedge, FERI Fund Market Information, Swiss Equity Magazine, Private Equity International and Das VentureCapital Magazin

institutions established in Switzerland including Asset Managers, Investment and Private Banks, Consulting Firms, Security Dealers, Family Offices, Insurance Companies, Hedge Fund and Private Equity Mangers, totaling 518 firms[49]. A 16% rate of return was achieved (83 questionnaires).

The final sample contains only firms which manage alternative products and was limited to those which report sufficient information to construct the required variables. The sample used contains cross sectional data for 57 firms which represent 20 firms active in hedge fund management, 20 in private equity and 17 active in both rubrics. A total of 74 cases were computed since data was divided by service line resulting in 37 firms under each product type.

The first part of the questionnaire addressed general company information which derives some of the independent variables. The second part controls the firm's capability to service hedge fund and private equity products.

Descriptive statistics such as type of institution, type of products offered and competence areas were quantified. Data was reduced to hedge funds and private equity operations and examined along seven headings. Six of them represent the original predictor variables: regulatory status, number of employees, assets under management, product line, customer base and experience. One of the headings represents the observed response variable (Self description).

From resulting questionnaire data, compounded capability indexes was calculated. Indexes act as main predictor(s) variable(s) where specific knowledge was measured.

Human skills were acknowledged as the performance of any of the following activities: investing, structuring, distributing and advising in different product types (HF, PE) and along different investment instruments. [50] In the case of private equity, a third option is possible; customers have the possibility to invest directly in private companies, but this option was not considered.

For classification purposes the institutional dimension was further reclassified into Banks, Security Dealers and Non-Regulated institutions. Additional descriptive data[51] withdrawn from the survey is depicted in Appendix 3.

---

[48] PSEPS=Venture Capital and Private Equity Directory, SBA= Swiss Bankers Association, SECA= Swiss Private Equity & Corporate Finance Association, SFA= Swiss Funds Association, SNB= Swiss National Bank, SVV= Schweizerischer Versicherungsverband

[49] A 16% rate of return was achieved (83 questionnaires).

[50] That is managers investing directly in a single fund and managers investing through a fund of funds.

[51] Clustering, Degree of competence index and Value creation.

A summary chart depicts the percentage distribution of the total qualified respondents by institutional type along each service offer.

	Institutional Category		Type of Service Offered		
	Total number of firms	Total percentage	Active in HF (%)	Active in PE (%)	Active in both (%)
Banks	19	33	9	1	9
Security Dealers	7	12	3	1	3
Other	31	55	8	18	5

Table 9 Summary of institutions surveyed analyzed by institutional category and by type of service offered

In order to account for unit nonresponse, mainly caused by inability to respond, refusals, and unlocated respondents, propensity weighting was used. Response propensity weighting is analogous to weighting for differential sample selection using the inverse of the sampling weights, as in the Horvitz-Thompson estimator for a population mean or total (Little, 1988, p.293).

"If a sizable number of variables *x* is available for respondents and nonrespondents, then a natural generalization of the method is to regress the binary nonresponse indicator *r* on *x*, using logistic or probit regression if necessary, and derive predicted response propensities $\hat{p}$= Pr $(ri = 1 | xi)$ for respondents and nonrespondents. Weights can then be defined as proportional to the inverse propensities for respondents, or by forming adjustment cells based on the propensity score" (Little, 1988, p.293).

In our case the number of covariates is less than sizeable; only 2 variables are consistently available for all respondents and nonrespondents: source and location. Nevertheless, location does not seem appropriate since it has no inference on the capabilities the firm posses, our variable of interest. As only one variable was appropriate to adjust for unit nonreponse we took the following simplified approach: [52]

(i) Identify the consistently available variable for all respondents and nonrespondents.

(ii) Classify the units divided in their corresponding response class as respondents and nonrespondents.

[52] Based on PEAS (Practical Exemplars and Survey Analysis) methodology.

(iii) Apply the weight to the responding cases that is proportional to w=1/probability of responding. Non-response weights are determined from the probability of response calculated from data about responding and non-responding units.

(iv) Rescale weights so as to add to the responding sample numbers. Consequently underrepresented class groups attain the highest weights to bring the sample into line with the sampling frame.

Even if statisticians claim that non-response weighting reduce bias, the methodological understanding that it will not eliminate bias completely. Bias will continue to be present for 2 main reasons: reasons for participating on surveys are complex and they respond to specific individual factors. As a result, the non-response biases in surveys are likely to be complex. "Post-stratification works on the assumption that, by aligning the survey to the population along a small number of dimensions, many of these complex biases will reduce. But it would be misleading to suggest they will be eliminated" (PEAS, 2009).

Following the above mentioned approach, the variable source, defined as the source listing (PSEPS, SBA, SECA, SFA, SNB, SVV, Industry Journals) from which the population subjects were obtained, became the predictor of choice to solve for unit nonresponse. The main reason is that the variable relates to the capabilities issue we want to investigate, given that most of the source listing are published by financial associations in the form of membership listings. This association reveals the type of member and the presupposed characteristics of the scrutinized subjects.

Sampling frame			**Unit non response weight**			
Tabulation number	Frame Group	Total	Responses	Response Probability	Weight	Rescales Weight
1	SVV	49	3	0.06	16.33	1.80
2	Industry Journals	109	9	0.08	12.11	1.33
3	PSEPS	42	3	0.07	14.00	1.54
4	SBA	26	3	0.12	8.67	0.95
5	SECA	106	17	0.16	6.24	0.69
6	SFA	35	9	0.26	3.89	0.43
7	SNB	151	13	0.09	11.62	1.28
	TOTAL	518	57	0.11	518.00	57.00

Table 10 Calculation of unit nonresponse weights

Even if unit nonresponse weighting was calculated to prevent underrepresentation of specific stratum in the sample, the differential weights derived from the response rate were not applied to the variable of interest (capability indexes). It corrected for the differential effects of nonresponse but it destroyed the self-weighting nature of the sampling design and introduced complications. For our data sample statistical generalizations of firms belonging to the same stratum were not achieved. Additionally, by applying weights to the variable of interest prevented the subdivision and proper analysis of data by product type.

3.2. Methodology

Similarly to Monteverde and Teece (1982), we tried to examine the effects of asset specificity, defined here as "employee-specific knowledge", on the decision to manage[53] alternative asset products in-house or to obtain them from outside suppliers. We will introduce a slight variation of the dichotomous construct by defining the make (integrate) or buy (fragment) decision from an observed polytomous variable.

As stated above, logistic regression models based on a multiple choice setting of more than two categories make use of multinomial models for predicting the probability of the hypothetical outcome (Y) given known values of (X). Multinomial logistic regressions are useful in empirical contexts where the dependent variable is of particular qualitative kind (Wooldrige, 2009, p. 254) and it applies when data are individual specific (Greene, 1951, p.720).

A logistic regression model is an application of the linear model (multiple regression model) expressed in logarithmic terms. In the logit model the log odds of the outcome is modeled as a linear combination of the predictor variables. The logarithm of the odds is also referred to as the log odds or logit (Forthofer et al., 2007).

Logit models for multiple choices measure categorical values; therefore the assumption of linear relationship of the observed data is violated. For that reason data must be handled using logarithmic transformation. By expressing the multiple linear regression equation on logarithmic terms (called the logit) we overcome the problem of violating the assumption of linearity that the dependent variable is continuous and normally distributed (Field, 2009, p.267).

[53] As previously mentioned defined as investing, structuring, distributing and advising on alternative assets

Logistic regression uses the maximum likelihood procedure to obtain the parameter estimates. The maximum likelihood approach selects coefficients that have the greatest likelihood of producing the observed data. The estimation procedure usually begins with the least squares estimates of coefficients and then uses an iterative algorithm to successively find new sets of coefficients that have higher likelihood of producing the observed data (Forthofer et al., 2007, p.390). In our case we use the maximum likelihood estimator (MLE) to measure human asset capabilities in alternative asset managers.

The estimate, that is the coefficient odds ratio, compare pairs of outcome categories (defined as comparison group and reference group) and indicates how the risk of the outcome falling in the comparison group compared to the risk of the outcome falling in the referent group changes with the variable in question. The estimates are interpreted in relation to the obtained values, an odds ratio > 1 indicates that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the referent group increases as the variable increases, therefore the comparison outcome is more likely. An odds ratio < 1 that the risk of the outcome falling in the comparison group compared to the risk of the outcome falling in the referent group decreases as the variable increases (UCLA Academic Technology Services).

We have to observe that in choice models, *p* is a conditional probability of the form P (Y=1| X1,...,X*p*). That is, it is assumed that odds ratio is more or less likely depending on combinations of values of the predictor variables. Ultimately our choice model will determine if there is a significant relationship between the independent variables and the possibility of fragmentation or not.

The multinomial model equation is the following (Greene, 1951, p.721):

$$\text{Prob}\,(Yi = j\,|\boldsymbol{x}i) = \frac{e^{\beta'_j x_i}}{1+\sum_{k=1}^{J} e^{\beta'_k x_i}} \text{ for j = 0, 2, …, J, } \beta_0 = 0$$

Where Yi 1=LPVI , 2=MPVI, 3=HPVI[54]

The estimated equation provides a set of probabilities for the *J +* 1 choices for a decision maker with characteristics of **x**i with *k* independent variables (Greene, 1951, p.721). By obtaining estimates for the betas in the linear combination, $\beta_{0+}\beta_1\mathcal{X}_{1+}\beta_2\mathcal{X}_{2+}\ldots_{+}\beta_k\mathcal{X}_k$, we can calculate the estimated or predicted probability of the outcome of interest (Forthofer, et al., 2007, p.394).

[54] Dependent variable divided in levels of non integration (1) low (LNVI), (2) medium (MNVI) or high (HNVI).

Wald and LRT are the most commonly used test statistics that help reject or not the hypothesis. The test support in the assessment if a significant relationship exists between the dependent variable and the independent variable(s) contained in the logistic model. By evaluating if the coefficient of the independent variable is equal to zero versus the alternative hypothesis that the coefficient is nonzero (null hypothesis) (Forthofer et al., 2007, p.390).

The two common forms of residuals employed in logistic regressions to examine the fit of the model are Pearson residuals and deviance residuals. They are useful for identifying outlying and influential points (Pregibon, 1981).

Variables

The subsequent variables were used in order understand the structural construct considering variations of the human asset factor. The primary dependent variable, probability of non-vertical integration, the so called organizational form, is derived from the observed concentration range of services offered (Self description=Advisor, Intermediary or Investor) at firm level. The likelihood of non-vertical integration increases the higher the concentration of capabilities. Since this variable is of polytomous type, the observed level of non-vertical integration (OLNVI) is observable in three levels: low (LNVI), medium (MNVI) or high (HNVI).

Predictor variables such as modified regulatory status, number of employees and number and type of product will be tested in order to establish the main effects in relation to the expected outcome and as interaction variables with the compounded capabilities index.

The key independent variable is modeled from levels of human asset specificity encountered. To enable the measurement of the capability levels, indexes comprising skill values were created. In order to estimate the indexes, each firm code is defined given the amount of skills presented along 7 competence areas along 2 investment instruments[55]. Questionnaires originally included 14 competence areas[56] but were reduced to 7 through an additional variable which controlled for type of product HF and PE.

The specific knowledge was then measured with a Likert scale valuating from 1 to 5 the levels of in-house firm's knowledge (How would you describe the firm following competence areas? 1= not competent 5= competent).

[55] Investment, Structuring, Distributing and Advising in Single and Fund of Funds

[56] Single Hedge Funds: Investment, Structuring, Distributing and Advising. Fund of Hedge Funds: Investment, Distributing and Advising. Single Private Equity Funds: Investment, Structuring, Distributing and Advising. Private Equity Fund of Funds: Investment, Distributing and Advising.

Indexes represent possible combinations of investing (I), distributing (D), advising (A) and structuring (S) and along 2 investment instruments, Single and Funds of Funds, excluding structuring in funds of funds. Questionnaires exposed the following compounded indexes: Single ID Index, Single IDA Index, Single IDAS Index, FoF ID Index and FoF IDA Index. As already mentioned in the hypothesis, the assumption was based on the fact that accumulated capabilities associated with investing, distributing, advising, and structuring alternative products, will yield an increased likelihood of fragmentation due to the quasi rents produced by those "capabilities" at employee level.

Factor analysis was used to derive the set of indexes per firm. The principal component analysis method was employed to check for dimensionality, which considers the total variance of the data, to obtain the weighted average of the scores. The scores were then multiplied by each response obtained from the Likert scale to finally divide the sum of the individual factors by the sum of the factor loadings. After the above mentioned procedure was concluded the following indexes were developed:

1. SINGLE ID INDEX is based rating only the investing and distributing capabilities
2. SINGLE IDA INDEX includes investment capabilities plus distributing and advising
3. SINGLE IDAS INDEX includes investment, distributing, advising and structuring capabilities
4. FoF ID INDEX includes investing and distributing capabilities
5. FoF IDA INDEX includes investment capabilities plus distributing and advising

The capability order follows the accumulation of skills from basic to specialized. The type of instrument is also acknowledged, SINGLE referring to single funds and FoF to fund of funds. Individual capabilities were also considered in order to infer the probability of non integration. Therefore two levels of concentration of capabilities are considered: (1) Index level in order to prove the hypothesis, (2) Single capability, to check if individual capabilities had a relation to the variable of outcome. Table 11 illustrates a description of the selected variables:

Variable	Name	Label	Definition	Measure
Y	Observed level of non-vertical integration	OLNVI (1) LNVI (observed low level of NVI if the firm describes itself only along one heading) (2) MNVI (observed medium level of NVI if the firm describes itself along two headings) (3) HNVI (observed high level of NVI if the firm describes itself along three or more headings)	Based on the following service offerings: (1) Only Advisor, Only Intermediary or Only Investor (2) Advisor + Intermediary or Advisor + Investor or Intermediary + Investor (3) All	Categorical
	Regulatory status	REGSTAT	(1) Bank (omitted) (2) Other (3) Security Dealer	Categorical
To be able to make conclusions of the main effects and interactions between factors and covariates using a multinomial regression, the respecification the variable REGSTAT was required. The variable was transformed using dummy variables resulting in the following variable:				
X1	Modified REGSTAT	MODREGSTAT[57]	(0) Bank or Security Dealer (1) Other	Categorical
X2	Number of employees	NOEMPL	Employees active in alternative assets in CH (as proxy of company size)	Numerical
	Type of product	TYPEPROD	(1) Hedge Funds (2) Private Equity (3) Both (omitted)	Categorical
The same case as in regulatory status applies to TYPEPROD. Using dummy variables resulted in 2 additional variables. The variables are the following:				
X3	Specialized TYPEPROD	SPECTYPEPROD	(0) Only one HF or PE (1) Both	Categorical
X4	Individual TYPEPROD	INDITYPEPROD	(0) PE (1) HF	Categorical
X5	Compounded levels of asset specificity	INDEX[58]	(1) SINGLE ID INDEX (2) SINGLE IDA INDEX (3) SINGLE IDAS INDEX (4) FoF ID INDEX (5) FoF IDA INDEX	Numerical
OR				
X5	Single levels of asset specificity	Same as definition	(1) Advise Single (2) Invest Single (3) Distribute Single (4) Structure Single (5) Advise FoF (6) Invest FoF (7) Distribute FoF	Numerical

Table 11 Variable description

[57] Only one variable was created since data is evenly distributed as 51.4% of the cases are "Bank or Security Dealer"and 48.6% of the cases are "Other".

In a previous exercise designed for variable elimination purposes assets under management, productivity, experience and client type were removed as they proved to be not significant.

Variable	Name	Label	Definition	Measure
X6	Assets under management (approximation to average interval in millions CHF)	AUM	(1) 125 (2) 375 (3) 625 (4) 875 (5) 1125 (6) 1375	Numerical
X7	Productivity	PRODVTY	Assets under management / Employees active in alternative assets in CHF	Numerical
			OR	
X7	LN Productivity	LNPRODVTY	LN (Assets under management / Employees active in alternative assets in CHF)	Numerical
X8	Experience	EXPER	2007 minus years established in PE and HF management	Numerical
X9	Client type	CLTYPE	(1) Private investor (2) Institutional investor (3) Bank (4) Other	Categorical

Table 12 Variables not included in the analysis

The empirical analysis intends to uncover what dimensions influence firms with high levels of human asset specificity to obtain a shift directed to fragmentation.

Equation

The estimation equation is of the following form:

$$OLNVI_{jklm} = \beta_0 + \beta_1 MODREGSTAT_{ij} + \beta_2 NOEMPL_i +$$

$$\beta_3 SPECTYPEPR\ OD_{ik} + \beta_4 INDITYPEPR\ OD_{il} + \beta_5 INDEX_m + \varepsilon_{jklm}$$

The subscript *i* refers to the number of observations, *j* refers to the type of regulatory status, *k* to the number of products managed by firm, *l* to the type of products managed, and *m* to the human asset index being analyzed.

In addition to the application of exploratory factor analysis to the INDEXES to check for validation, reliability was also measured computing the alpha coefficient. Using a Cornbach's alpha α[59], the most common measure of scale reliability[60], we can calculate for each item in our

[59] Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. The usual way to consider reliability is based on the idea that individual items (or sets of items) should produce

scale two things: the variance within the item, and the covariance between a particular item and any other item on the scale. A "high" value of alpha is often used as evidence that the items measure an underlying (or latent) construct.

Field (2009) summarizes that "the normal alpha is appropriate when items on a scale are summed to produce a single score for that scale" (p.675). Literature, portraying social science research results, cites as an acceptable value for Cornbach's alpha α one that lies between 0.7 and 0.8.

After the alpha analysis was employed it resulted in the following estimates:
SINGLE IDA INDEX = 0.571 with 3 items
SINGLE IDAS INDEX= 0.704 with 4 items
FoF IDA INDEX=0.717 with 3 items

Two of the measurements (0.704 and 0.717) suggest that the items have relatively high internal consistency. Nevertheless we chose to consider the 0.571 as a fairly reliable coefficient given the research published by Cortina in 1993. In his work he notes that such general guidelines need to be used with caution because the value of α depends on the number of items on the scale (given the equation construction).

Since we determined to measure the capabilities accrual of 3 or more characteristics, SINGLE ID INDEX and FoF ID INDEX will not be measured. Such determination is based on the assumption that investing and distributing reflect the most basic activities preformed by financial institutions and therefore easily executable by all financial institutions, therefore contradicting our original supposition.

Following the methodology exemplified by Anderson & Schmittlein (1984), in order to account for differences in scale, NOEMPL, SINGLE IDA INDEX, SINGLE IDAS INDEX, and FoF IDA INDEX were standardized before estimating the response function. Standardization allows for transformation the measurement unit of the data by subtracting the variable's mean and then by dividing by the standard deviation. Thus, standardized variables have a mean of zero and a standard deviation of one, and the magnitudes of response function coefficients may be directly

---

results consistent with the overall questionnaire. Technically speaking, Cronbach's alpha is not a statistical test - it is a coefficient of reliability (or consistency) (Field, 2009).

[60] Reliability can be defined as the extent to which measures are free from random error which produces inconsistency, leading to lower reliability. In theory reliability of scale should consistently reflect the construct that is measuring (Malhotra, 2004).

compared (p.391). The dependent variables as well as the respecified variables were not standardized.

On the basis of the motivation explained at the beginning of this section we hypothesized that the variables MODREGSTAT, NOEMPL and SINGLE INDEXES (SINGLE IDA and SINGLE IDAS) will have a positive effect on the likelihood of increasing probabilities of non vertical integration.

We expect significant results and negative coefficients[61] on the main effect of each individual index (SINGLE IDA, SINGLE IDAS, FoF IDA) which means that an increase in the index increases the probability of HNVI. The opposite is pre-assumed for the main effect of NOEMPL which estimates that increasing a unit of NOEMPL will decrease the probability of non vertical integration. We presume the smaller the firm in terms of employees, the observed level of NVI will tend to be higher.[62]. As mentioned in the hypothesis we deduct that the accumulation of capabilities as in the case of Single IDAS will present a more conclusive prediction in the determination for a non integrative result. [63]

We also anticipate significant results in the interactions of MODREGSTAT and SINGLE IDA and IDAS which will help determine the likelihood of non vertical integration depending if the financial institution is catalogues as a "Bank or Security Dealer" or as "Other".

As we already mentioned the respecification of the variable REGSTAT became MODREGSAT and for the same reasons the second equation translates into 2 separate interactions; $INDEX_{im}$ * INDITYPEPROD and $INDEX_{im}$ * SPECTYPEPROD, being the latter particularly relevant for our study. Respecting our hypothesis INDITYPEPROD and SPECTYPEPROD will tend to be greater when transaction specificity assets are high. [64]

[61] Parameter estimates of a multinomial logistic regression are relative to the referent group (HNVI), interpretation of the multinomial logit is that for a unit change in the predictor variable, the logit outcome of MNVI relative to HNVI is expected to change by β given the variables in the model are held constant.
[62] Please refer to the SINGLE IDAS section where results contradict our hypothesis
[63] When comparing the odds ratio, results predicted that an increase in one unit of SINGLE IDA INDEX augment the probability of HNVI by 25 times. In the case of SINGLE IDAS the probability of HNVI increases only by 3.33 times.
[64] It is not certain if our case will require further mathematical standardizations as the ones proposed by Cooper and Nakanishi (1982) using the zeta-squared transform to solve for multiplicative interactions of previous standardized terms, since INDITYPEPROD and SPECTYPEPROD are not standardized by reason of variables values which are equated to 0 and 1.

3.3. Results

According to our hypothesis we assume that the probability of observing a *fragmented* governance structure depends on significant levels of asset specificity. We will try to determine which variables proposed are determinant for such condition.

Results were measured at 2 levels of concentration of capabilities. At index level, in order to prove the hypothesis and at single capability, to check if individual capabilities had a relation to the variable of outcome. We will apply the inferential logistic method previously described, in which the internal knowledge based capabilities of individual firms set along additional predictors will define the interactions which influence fragmentation or non-fragmentation in the business units.

Evaluation of Indexes

We will start by presenting the processing summary which resulted after computing the multinomial regressions for the three comparable cases:

Variable	Definition	N	Percentage
Observed level of NVI based on service activities	LNVI	37	50.0%
	MNVI	24	32.4%
	HNVI	13	17.6%
SPECTYPEPROD	Specialized (HF or PE)	40	54,1%
	Both	34	45,9%
INDITYPEPROD	PE	20	27,0%
	HF	54	73,0%
MODREGSTATUS	Bank or Security Dealer	38	51,4%
	Other	36	48,6%
Valid		74	100,0%
Missing		0	
Total		74	

Table 13 Case processing summary

In all cases, we will only report for significant outcomes and the confidence interval for the odds ratio will be set at 90%. These results are highlighted in gray.

The models presented include forced entry of the main effects in which MODREGSTAT, SPECTYPEPROD, INDITYPEPROD, NOEMPL and the selected index (SINGLE IDA; SINGLE IDAS; FOF IDA) are measured. Models are reduced using backward elimination for interactions

between each index and the above mentioned variables. Such variables are set to define the outcome of interest.

The summarized results of the index variations are depicted in the following chart. Detailed explanations of each index will then be analyzed and further explained.

	SINGLE IDA			SINGLE IDAS			FOF IDA		
	Variable	β (SE)	Odds Ratio	Variable	β (SE)	Odds Ratio	Variable	β(SE)	Odds Ratio
LNVI vs. HNVI				SINGLE IDAS	-1.20 (0.67)*	0.30			
				MODREGSTAT * SINGLE IDAS	1.48 (0.84)*	4.38			
							FOF IDA	-0.65 (0.38)*	0.52
MNVI vs. HNVI				NOEMPL	-1.59 (0.92)*	0.20			
	SINGLE IDA	-3.13 (1.91)*	0.04	SINGLE IDAS	-1.20 (0.73)*	0.30			
	MODREGSTAT * SINGLE IDA	3.52 (1.97)*	33.83	MODREGSTAT * SINGLE IDAS	1.82 (0.91)**	6.20			
							FOF IDA	-0.82 (0.43)*	0.44

* p<.10, ** p<.05

Note: parameter estimates are relative to the referent group (HNVI), interpretation of the multinomial logit is that for a unit change in the predictor variable, the logit outcome of MNVI relative to HNVI is expected to change by β given the variables in the model are held constant.

Table 14 Results of index variations

SINGLE IDA INDEX

After analyzing the LR Tests to ascertain the significance of predictors to the model; results for SINGLE IDA INDEX reveled that interactions obtained relevant estimates which are important in determining the non vertical integration outcome.

The first interaction shows that regulatory status interacted with IDA INDEX to predict a high level of non vertical integration (HNVI). Therefore MODREGSTAT * SINGLE IDA INDEX results in $X^2(2) = 5.84$, $p = .054$.

In a similar way, individual type of product, that is HF or PE, interacted with IDA INDEX to predict a HNVI. In this case, the LR test demonstrates that INDITYPEPROD * SINGLE IDA INDEX yields the following outcome $X^2(2) = 5.44$, $p = .066$.

The effects of the statistics have to be analyzed through the parameter estimates, since likelihood statistics (LR) are only an overall statistic that informs which predictors significantly enable us to calculate the outcome category but not the effect.

For the human asset component embedded in SINGLE IDA INDEX results are reflected in Table 15.

Variables	B	SE	Lower	Odds Ratio	Upper	Sig.
LNVI vs. HNVI						
Intercept	2.43	1.09				0.03
NOEMPL	-0.02	0.40	0.50	0.98	1.88	0.95
MODREGSTAT	-1.16	1.12	0.05	0.31	1.97	0.30
SPECTYPEPROD	-0.89	0.87	0.10	0.41	1.72	0.31
INDITYPEPROD	0.25	1.46	0.12	1.29	14.12	0.86
SINGLE IDA INDEX	-1.50	1.68	0.01	0.22	3.55	0.37
MODREGSTAT * SINGLE IDA INDEX	1.77	1.74	0.34	5.86	101.67	0.31
INDITYPEPROD * SINGLE IDA INDEX	0.06	1.85	0.05	1.06	22.23	0.97
MNVI vs. HNVI						
Intercept	0.44	1.30				0.74
NOEMPL	-1.41	1.00	0.05	0.24	1.27	0.16
MODREGSTAT	0.18	1.27	0.15	1.20	9.71	0.89
SPECTYPEPROD	-0.63	0.95	0.11	0.53	2.52	0.51
INDITYPEPROD	0.66	1.56	0.15	1.94	25.42	0.67
SINGLE IDA INDEX	-3.13	1.91	0.00	0.04	1.01	0.10*
MODREGSTAT * SINGLE IDA INDEX	3.52	1.97	1.33	33.83	859.61	0.07*
INDITYPEPROD * SINGLE IDA INDEX	2.46	2.10	0.37	11.68	366.85	0.24

Note R^2 = .25 (Cox & Snell), .28 (Nagelkerke). Model X^2 (14) =20.80
* p<.10, ** p<.05

Table 15 Model results based on SINGLE IDA INDEX

LNVI vs. HNVI

As reflected on the table above, the model yields no significant results for the first comparison group.

MNVI vs. HNVI

The second comparison group reflects significant results in two headings. First we can detect that an increase in one unit of SINGLE IDA INDEX lowers (negative beta) the chance of being in MNVI by 0.04 as compared to HNVI (1/0.04). Therefore an increase in the index increases the probability of HNVI by 25 times.

The interaction between the regulatory status and the index (MODREGSTAT * SINGLE IDA INDEX) also yields desirable results. As the index increases Banks and Security Dealers improve the chance of being in MNVI by 33.83 as compared to HNVI (1/33.83)=0.03 while for institutions cataloged as Other the chance if MNVI compared with HNVI is of 0.03. Consequently, as the index increases, institutions cataloged as Other are more likely to tend towards HNVI than Banks and Security Dealers. In other words, as firms or business units change from Bank or Security Dealer to Other in combination with the SINGLE IDA INDEX increasing, the change in the odds of firms to a moderate level of non integration (MNVI) compared to a high level (HNVI) is 33.83. Therefore firms with MNVI are at better odds to not integrate vertically.

Therefore one can conclude that the level of NVI obtained from regulatory status on SINGLE IDA INDEX was dependant on whether the firm was regulated under the Bank or Security Dealer heading or as Other because their interaction led to the prediction of a moderate level of non vertical integration (MNVI). Since parameter estimates are relative to the referent group, the standard interpretation of the multinomial logit is that for a unit change in the predictor variable, the logit outcome of MNVI relative to HNVI is expected to change by 3.52 given the variables in the model are held constant. Therefore a large and positive coefficient supports the hypothesis of non vertical integration nevertheless if expected the outcome in the other direction would be optimal (from MNVI to HNVI).

Nevertheless the big spread in the confidence interval reveals signs of uncertainty in the odds ratio results. We must then continue to apply the model to other indexes in order to expose underlying variables that precede the outcome of interest.

SINGLE IDAS INDEX

We start by analyzing the LR tests on the significance of predictors on the main effects of HNVI. In the case of SINGLE IDAS INDEX, NOEMPL had a significant main effect on the high probability of non vertical integration, $X^2(2) = 6.82$, $p < .033$. In addition MODREGSTAT * SINGLE IDAS INDEX showed the following results for the LR test $X^2(2) = 5.03$, $p < .081$.

As in the case of SINGLE IDA INDEX, analyzing the parameters depicted in Table16 we observe the same two variables which are significant for the overall model: the index itself, SINGLE IDAS INDEX, and the interaction between MODREGSTAT and SINGLE IDAS INDEX plus NOEMPL. In this case, the effects are shown in both comparison groups LNVI vs. HNVI and MNVI vs. HNVI.

Variables	B	SE	Lower	Odds Ratio	Upper	Sig.
LNVI vs. HNVI						
Intercept	2.26	0.97				0.02
NOEMPL	-0.06	0.37	0.51	0.94	1.74	0.87
MODREGSTAT	-0.89	1.01	0.08	0.41	2.16	0.38
SPECTYPEPROD	-1.11	0.88	0.08	0.33	1.39	0.21
INDITYPEPROD	0.74	1.34	0.23	2.09	18.85	0.58
SINGLE IDAS INDEX	-1.20	0.67	0.10	0.30	0.90	0.07*
MODREGSTAT * SINGLE IDAS INDEX	1.48	0.84	1.10	4.38	17.50	0.08*
MNVI vs. HNVI						
Intercept	1.13	1.09				0.30
NOEMPL	-1.59	0.92	0.05	0.20	0.92	0.08*
MODREGSTAT	-0.47	1.08	0.11	0.63	3.72	0.67
SPECTYPEPROD	-0.59	0.93	0.12	0.55	2.54	0.52
INDITYPEPROD	0.33	1.42	0.13	1.39	14.36	0.82
SINGLE IDAS INDEX	-1.20	0.73	0.09	0.30	1.00	0.10*
MODREGSTAT * SINGLE IDAS INDEX	1.82	0.91	1.40	6.20	27.47	0.04**

Note R^2 = .20 (Cox & Snell), .22 (Nagelkerke). Model X^2 (12) =16.02
* p<.10, ** p<.05

Table 16 Model results based on SINGLE IDAS INDEX

LNVI vs. HNVI

An increase in one unit of SINGLE IDAS INDEX lowers (negative beta) the chance of being in LNVI by 0.30 as compared to HNVI (1/0.30). Therefore, an increase in the index advances the probability of HNVI by 3.33 times. As seen on Table 16, the same effect is recognized for LNVI against HNVI and for MNVI against HNVI. Both betas are negative and the odds ratio reported are equal.

The probability of NVI obtained from the interaction of the regulatory status with the index (MODREGSTAT * SINGLE IDAS INDEX) can be interpreted as follows. As the index increases, Banks and Security Dealers raise the chance of being in LNVI by 4.38 as compared to HNVI which lies at 0.22 (1/4.38). On the other hand, for institutions cataloged as Other the chance if LNVI compared with HNVI is of 0.22. Therefore as index increases institutions cataloged as Other are more likely to tend towards HNVI than Banks and Security Dealers.

The case of measuring asset specificity through SINGLE IDAS INDEX results in a reduced model after the stepwise method of backward elimination is used. “The use of stepwise methods are defensible when used in situations in which no previous research exists on which the base hypothesis for testing, and in situations in which causality is not of interest and you merely wish

to find a model that fits the data"(Field, 2009, p.272). According to Field, the backward method is preferable to the forward method because of suppressor effects. These effects tend to occur when the predictor has a significant effect but only when another variable is held constant. Forward selection is more likely than backward elimination to exclude predictors involved in suppressor effects. As such, the forward method runs a high risk of making a Type II error (p.272).

MNVI vs. HNVI

In the second comparison group we detect noteworthy results of the variable NOEMPL. The outcome exposes that an increase in one unit of NOEMPL lowers (negative beta) the chance of being in MNVI by 0.20 as compared to HNVI (1/0.20). Therefore an increase in the NOEMPL augments the probability of HNVI by 5 times.

As we already mentioned analyzing the index SINGLE IDAS we observe the same effect in both comparison levels, LNVI against HNVI and MNVI against HNVI. With the results we can conclude that an increase in SINGLE IDAS index increases the probability of HNVI by 3.33 times.

Finally the interaction of MODREGSTAT with SINGLE IDAS INDEX reveals that as firms or business units change from Bank or Security Dealer to Other in combination with the SINGLE IDAS INDEX increasing, the change in the odds of Banks and Security Dealers of being in MNVI is 6.20 as compared to HNVI which lies as 0.16 (1/6.20). Therefore, firms or business units defined as Other are more likely than Bank or Security Dealer to experience high levels of non vertical integration. The coefficient 1.82 indicates a positive movement of the outcome which is in line with our expectations. A more precise model is therefore obtained which can be defined by non integration levels.

FoF IDA INDEX

As a final point we proceeded to measure the capabilities of firms managing fund of funds. In this case according to the LR Tests only NOEMPL had a significant main effect on the high probability of non vertical integration, $X^2(2) = 5.17$, $p < .075$.

The model shows no significant interactions on the variables proposed on firms managing fund of funds investments. A forced model without backward elimination could be employed but the outcome will not be consistent with the previous methodology employed.

Table 17 depicts the model results in which the index itself proves to be the only significant variable.

Variables	B	SE	Lower	Odds Ratio	Upper	Sig.
LNVI vs. HNVI						
Intercept	2.20	0.90				0.15
NOEMPL	0.10	0.34	0.64	1.11	1.92	0.76
MODREGSTAT	-0.55	0.87	0.14	0.56	2.43	0.53
SPECTYPEPROD	-1.05	0.86	0.09	0.35	1.45	0.23
INDITYPEPROD	-0.40	1.04	0.12	0.67	3.71	0.70
FOF IDA INDEX	-0.65	0.38	0.28	0.52	0.98	0.09*
MNVI vs. HNVI						
Intercept	1.14	1.00				0.26
NOEMPL	-1.25	0.83	0.07	0.29	1.12	0.13
MODREGSTAT	-0.15	0.93	0.19	0.86	4.00	0.87
SPECTYPEPROD	-0.46	0.92	0.14	0.63	2.85	0.61
INDITYPEPROD	-1.03	1.16	0.05	0.36	2.38	0.37
FOF IDA INDEX	-0.82	0.43	0.21	0.44	0.89	0.05*

Note R^2 = .17 (Cox & Snell), .20 (Nagelkerke). Model X^2 (10)=13.94
* p<.10, ** p<.05

Table 17 Model results based on FOF IDA INDEX

LNVI vs. HNVI

As we already mentioned the FOF IDA index reflects the most assuring results of the model. Results can be interpreted as follows, an increase in one unit of FOF IDA lowers (negative beta) the chance of being in LNVI by 0.52 as compared to HNVI. As a result, an increase in the index improves the probability of HNVI by 1.92 times (1/0.52).

MNVI vs. HNVI

In the second comparison group an increase in one unit of FOF IDA index lowers (negative beta) the chance of being in MNVI by 0.44 as compared to HNVI (1/0.44). Consequently an increase in the index raises the probability of HNVI by 2.27 times.

With the results presented above for the 3 indexes analyzed we cannot deduct a single interaction which is relevant for all cases. The generalization of the model is compromised since a consistent outcome of the same interaction terms among the INDEXES would indirectly confirm our hypothesis. We are aware that forced entry of interactions presents problems; mainly an interaction can be set to explain the variance that might otherwise be attributed to a main effect.

Evaluation of individual capabilities

In a second phase, a comparison of each single capability (INV SINGLE, DIST SINGLE, ADV SINGLE, STR SINGLE, INV FOF, DIST FOF, ADV FOF), was conducted to check for main effects and interactions with the rest of the predictors (MODREGSTAT, NOEMPL, SPECTYPEPROD, INDITYPEPROD). In this case backward elimination was also employed.

Of all the individual capabilities analyzed we observed interesting results produced by ADV SINGLE and DIST SINGLE with considerable levels of significance in interactions and main effects helping to define the HNVI outcome. The summarized results of ADV SINGLE are depicted in the following table. Detailed explanations of each single capability will be analyzed and further explained.

	ADV SINGLE		
	Variable	**β (SE)**	**Odds Ratio**
LNVI vs. HNVI	MODREGSTAT	-4.20(2.10) **	0.02
	ADV SINGLE	-0.90 (0.54)*	0.41
	MODREGSTAT * ADV SINGLE	1.14(0.62)*	3.11
MNVI vs. HNVI	NOEMPL	-1.96(1.03)*	0.14
	MODREGSTAT	-6.15(2.52)**	2E-3
	ADV SINGLE	-1.82(0.90)**	0.16
	MODREGSTAT * ADV SINGLE	2.35 (0.96)**	10.43
	INDITYPREPROD * ADV SINGLE	1.69(1.03)*	5.41

* p<.10, ** p<.05

Table 18 Summarized results for ADV SINGLE

Evaluating LR statistics for advising in single investment instruments we obtain the following results deemed important for determining which predictors shall be selected in the model. The most significant for determining non vertical integration are:

NOEMPL $X^2(2) = 7.46$, $p < .024$

MODREGSTAT $X^2(2) = 8.48$, $p < .014$

INDITYPEPROD	$X^2(2) = 6.17$, p <.046
MODREGSTAT * ADVSINGLE	$X^2(2) = 9.02$, p <.011
INDITYPEPROD * ADVSINGLE	$X^2(2) = 6.21$, p <.045

In case that the proposed hypothesis was based on individual capabilities, the LR statistics will lead us to believe that in fact ADV SINGLE has an important effect on all variables (except on SPECTYPEPROD), increasing the probability of non vertical integration. Let's recall that our hypothesis was based on the fact that fragmentation most likely will be produced at business units with a *high concentration of skills.*

Nonetheless we gave the task to interpret the detailed results present in Table 19 with the subsequent statements in order to exemplify how results could be extrapolated to compounded indexes. We will portray results only for significant outcomes.

Variables	B	SE	Lower	Odds Ratio	Upper	Sig.
LNVI vs. HNVI						
Intercept	4.79	1.99				0.02
NOEMPL	-0.27	0.42	0.38	0.76	1.52	0.52
MODREGSTAT	-4.20	2.10	0.00	0.02	0.47	0.05**
SPECTYPEPROD	-0.65	0.93	0.11	0.52	2.38	0.48
INDITYPEPROD	0.55	2.38	0.03	1.73	86.31	0.82
ADVSINGLE	-0.90	0.54	0.16	0.41	0.99	0.10*
MODREGSTAT * ADVSINGLE	1.14	0.62	1.13	3.11	8.59	0.07*
INDITYPEPROD * ADVSINGLE	-0.13	0.63	0.31	0.88	2.46	0.84
MNVI vs. HNVI						
Intercept	5.19	2.37				0.03
NOEMPL	-1.96	1.03	0.03	0.14	0.77	0.06*
MODREGSTAT	-6.15	2.52	3.38E-5	2E-3	0.13	0.02**
SPECTYPEPROD	-0.28	0.99	0.15	0.76	3.86	0.78
INDITYPEPROD	-4.61	3.31	4.33E-5	0.01	2.30	0.16
ADVSINGLE	-1.82	0.90	0.04	0.16	0.71	0.04**
MODREGSTAT * ADVSINGLE	2.35	0.96	2.17	10.43	50.15	0.01**
INDITYPEPROD * ADVSINGLE	1.69	1.03	1.00	5.41	29.41	0.10*

Note R^2 = .30 (Cox & Snell), .35 (Nagelkerke). Model X^2 (14)=26.47
* p<.10, ** p<.05

Table 19 Model results based on ADV SINGLE

LNVI vs. HNVI

The regulatory status of a firm or business unit (MODREGSTAT) significantly predicted whether firms with low levels of non vertical integration (LNVI) compared to firms with high levels (HNVI) will be more likely to fragment. As a result and due to the negative beta a change in MODREGSTAT lowers the chance of being in LNVI, as compared to HNVI. The odds ratio reveals that as changes in the regulatory status of the firms from Bank or Security Dealer to Other estimates an odds ratio of LNVI changing to HNVI of 0.02. That is, the odds that Other tending towards HNVI is 50 times (1/.02) less likely (-b) than for Bank and Security Dealers.

The analysis whether advising in single instruments (ADV SINGLE) significantly predicted the integration or fragmentation decision based on the number of services a firms offers is based on the following statement. An increase in ADV SINGLE lowers the chance (negative beta) by 0.41 of being in LNVI against HNVI. For that reason an increase of ADV SINGLE augment the probability of HNVI by (1/0.41) 2.43 times.

The type of regulatory status depended on the individual capabilities offered, in this case advising on single investment instruments. Accordingly, the interaction of MODREGSTAT with ADV SINGLE projected the following results. With b=1.14 and p=.07. Changing from Bank or Security Dealer to Other in combination of advising in single instruments increasing, the odds of firms with low levels of non vertical integration (LNVI) compared to firms with high levels (HNVI) is 3.11. Therefore as advising increases firms defined as Other are more likely to observe a low level of NVI.

As previously portrayed, the second part of the table compares likelihoods depending on the number of services offered ranging from to 2 to more which means comparing MNVI vs. HNVI.

MNVI vs. HNVI

Whether the number of employees (NOEMPL) significantly predicted the integration or fragmentation decision based on the number the services the firms offer is dependent on an odds ratio. The odds ratio suggests that an increase in one unit of employees, the change in the odds of MNVI vs. HNVI is 0.14. Due to the negative beta, an increase in one unit of NOEMPL lowers the chance if being in MNVI as compared to HNVI. An increase raises the probability of firms to be situated in HNVI by 7.14 times. Hence, the bigger the NOEMPL value the higher the chances to yield HNVI.

The odds ratio of MODREGSTAT uncovers that a change from regulatory status has a dramatic influence on the level of MNVI, which can be observed with an odd ratio of 2E-3 (which approximates 0). Therefore the regulatory status of the firm has a remarkable influence on the probability of HNVI of financial institutions.

As suggested above firms with strong capabilities in advising in single instruments (ADV SINGLE) will significantly define the probabilities of non vertical integration. The odds ratio tells us that a change in one unit of advising capabilities produces a change in the odds of MNVI vs. HNVI of 0.16 with a b=-1.82. Therefore, one more unit of ADV SINGLE lowers the chance of being in MNVI by 0.16. One can conclude that an. increase of ADV SINGLE enhance the probability of HNVI by (1/0.16) 6.25 times.

The interaction of MODREGSTAT with ADV SINGLE also produces significant results. The type of regulatory status depends on the capabilities of advising on single investment instruments. With a beta b=2.35 changing from Bank or Security Dealer to Other in combination of advising in single instruments increasing, the odds of firms with moderate level (MNVI) compared to firms with high level (HNVI) is 10.43. As advising increases firms defined as Other are more likely to not integrate.

Finally INDITYPEPROD interacting with ADV SINGLE refers to the type of product being managed, PE or HF. A change in the managing PE to HF in combination with an increase in the capabilities a firm poses in advising in single instruments produces an odds ratio of 5.41 of firms being located in MNVI compared to HNVI. As advising increases firms managing PE are more likely to register a moderate level of NVI.

To conclude with the evaluation of individual capabilities, the distribution of single instruments (DIST SINGLE) was also analyzed. The summarized results of these findings are depicted in the following table.

	DIST SINGLE		
	Variable	**β (SE)**	**Odds Ratio**
LNVI vs. HNVI	SPECTYPREPROD	-18.95(1.61) ***	5.88E-9
	INDITYPREPROD	19.92(1.63)***	4.46E8
	SPECTYPREPROD * DIST SINGLE	17.20 (0.84)***	2.96E7
	INDITYPREPROD * DIST SINGLE	-18.16(0.65)***	1.30E-8
MNVI vs. HNVI	NOEMPL	-1.59 (0.89)*	0.20
	SPECTYPREPROD	-18.81 (1.56) ***	6.79E-9
	INDITYPREPROD	20.22 (1.54) ***	6.05E8
	SPECTYPREPROD * DIST SINGLE	17.34(0.73)***	3.38E7

* p<.10, ** p<.05

Table 20 Summarized results for DIST SINGLE

There is evidence which predicts significant levels of the influence of distributing single investments on the probability of non vertical integration. The drawback of the model nevertheless consists in that results for predictors become uncertain due to the large confidence intervals (see Table 21). However we explored and interpreted the most relevant model results.

When evaluating the distribution of single investment instruments LR statistics obtain the following substantial outcomes: Two are related to the management of individual products with INDITYPEPROD producing X2(2) =6.96, p <.031 and INDITYPEPROD interacting with DIST SINGLE yielding $X^2(2) = 12.49$, p <.002. A third variable NOEMPL portrayed good LR results $X^2(2) = 6.49$, p <.039, this variable showed as well important effects on the observable outcome.

When analyzing results of single distribution capabilities both comparison levels register dramatic changes for main effects as in SPECTYPEPROD and in interaction variables such as INDITYPEPROD with DIST SINGLE.

In the case of SPECTYPEPROD moving form managing either HF or PE to managing both products reflects an odds ratio close to 0 indicating a big negative effect of LNVI against MNVI,

similar results are observed when comparing MNVI against HNVI. Therefore firms with low and medium levels will be less likely to not integrate as the ones with high levels.

The interaction of INDITYPEPROD with DIST SINGLE reflects a similar outcome if companies manage either PE or HF products. This event has an enormous impact on the result if firms have a low occurrence level of non vertical integration against firm qualified as high. The negative beta reflects that a change in managing HF to PE lowers the chance of LNVI as compared with HNVI.

Variables	B	SE	Lower	Odds Ratio	Upper	Sig.
LNVI vs. HNVI						
Intercept	2.36	1.25				0.06
NOEMPL	-0.21	0.41	0.41	0.81	1.59	0.61
MODREGSTAT	-1.47	0.95	0.05	0.23	1.10	0.12
SPECTYPEPROD	-18.95	1.61	4.16E-10	5.88E-9	8.31E-8	0.00***
INDITYPEPROD	19.92	1.63	3.03E7	4.46E8	6.55E9	0.00***
DISTSINGLE	0.11	0.39	0.59	1.12	2.14	0.77
SPECTYPEPROD * DISTSINGLE	17.20	0.84	7.44E6	2.96E7	1.18E8	0.00***
INDITYPEPROD * DISTSINGLE	-18.16	0.65	4.43E-9	1.30E-8	3.78E-8	0.00***
MNVI vs. HNVI						
Intercept	1.23	1.38				0.37
NOEMPL	-1.59	0.89	0.05	0.20	0.89	0.08*
MODREGSTAT	-1.24	1.02	0.05	0.29	1.56	0.23
SPECTYPEPROD	-18.81	1.56	5.22E-10	6.79E-9	8.84E-8	0.00***
INDITYPEPROD	20.22	1.54	4.87E7	6.05E8	7.58E9	0.00***
DISTSINGLE	0.20	0.43	0.60	1.22	2.50	0.64
SPECTYPEPROD * DISTSINGLE	17.34	0.73	1.02E7	3.38E7	1.13E8	0.00***
INDITYPEPROD * DISTSINGLE	-18.54	0.00	8.88E-9	8.88E-9	8.88E-9	.

Note R^2 = .26 (Cox & Snell), .30 (Nagelkerke). Model X^2 (14)=22.34
* p<.10, ** p<.05

Table 21 Model results based on DIST SINGLE

Furthermore a comparison of each single capability INVSINGLE, DISTSINGLE, ADVSINGLE, STRSINGLE, INVFOF, DISTFOF, ADVFOF, with forced entry[65] into the model interacting with all predictors was conducted.

The most relevant LR statistics shown for all models are the following:

NOEMPL * STRSINGLE $X^2(2) = 10.71, p < .005$

[65] Using backward elimination

NOEMPL * DISTSINGLE	$X^2(2) = 7.17$, $p < .028$
NOEMPL * INVFOF	$X^2(2) = 7.16$, $p < .028$

Results show that NOEMPL, that is size of a firm measured through number of employees, is a predictor variable to consider while evaluating this type of problematic.

3.4. Model conclusions

Concentrating our conclusions on the index variations of SINGLE IDA, SINGLE IDAS; and FOF IDA we observe that larger indexes increase the probability of HNVI. As a result firms possessing superior capabilities have a higher probability towards non vertical integration. This is in line with the hypothesis in which we refer that higher probability of non vertical integration for firms managing single instruments in comparison to firms which manage funds of funds.

Individual observations reveal that SINGLE INDEXES (IDA and IDAS) in combination with MODREGSTAT predict moderate probability of non vertical integration for Banks and Security Dealers and high non integration for institutions cataloged as Other. One has to admit that the SINGLE IDA INDEX reflects a big spread in the confidence interval while SINGLE IDAS INDEX gives a more accurate estimate of the predicted outcome. Results are in line with the hypothesis calculation, in which firms defined as Other (mainly boutique shops) managing single investments have a better chance of a non integrative outcome.

In some cases regulatory status and number of employees will dictate the vertical integration decision but indexes present clearer results. In firms with higher concentration of single capabilities a higher number of employees will increase the probability of non vertical integration. This diverts from the expected hypothesis results in which we expected a lower NOEMPL would increase the probability of non vertical integration.

Individual capabilities such as advising and distributing in single vehicles compared to compounded capabilities have also a considerable effect on the desired outcome.

To summarize the model conclusions we can observe that there is indications that transaction costs considerations focusing on human skills appear to have implications in the determination

of structural changes in the alternative asset industry. Even if individual capabilities as compared to compounded capabilities seem to play also a crucial role in the desired outcome.

As we have based on our hypothesis on the concentration of human asset skills, given the above presented results, it is not possible to generalize the model based on a single definite main effect or interaction that predicts non-vertical integration for all alternative asset firms under study. Nevertheless results show that firm's capabilities will have an effect on non vertical integration.

We are convinced that a longitudinal study could further enhance results as to prove if companies which retained special skills and capabilities will fragment in the midst of environmental changes. The results of the main effects of NOEMPL and the indexes themselves (SINGLE IDA, SINGLE IDAS, and FOF IDA) and the interactions of MODREGSTAT are encouraging and a strong motivation to attempt future research.

However the study dares to go beyond retrospective explanations and offers plausible ex ante predictions for a non integrated outcome. Until now literature was preoccupied with "ex post rationalizations of successes, the object being to uncover what explains excellence" (Williamson, 1998).

Perry (1978) readings conclude that there are many possible reasons for vertical integration rather than a single one which will necessarily apply in all circumstances.

We must also remember that there is a possibility that our case refers indirectly to intractable transactions, for which there are no good solutions given the complexity of the transactions. Literature and practice have to rely on comparisons between modes of governance which is *enough* in a world of flawed transactions (Williamson, 1998, p.51). Perry (1978) readings conclude that there are many possible reasons for vertical integration rather than a single one which will necessarily apply in all circumstances.

3.5. Extensions and other considerations

Much remain to be seen from the application of the different theories governing the economics of institutions to cases pertaining to human assets. X-efficiency, transaction cost economics and the agency theories play a decisive role in the make or buy decision or theory of the firm which involves human beings and not products as the central element.It has proven difficult to rely on

ex ante theoretical explanation which identifies the quantifiable parameters ruling human asset specific transactions, nevertheless we propose a brave attempt to go beyond *ex post* rationalization and offer plausible predictions. Literature limits our case, since efforts to predict success are rarely made. Much of the written work is preoccupied with "*ex post* rationalizations of successes, the object being to uncover what explains excellence" (Williamson, 1998, p.47).

For future research we could also consider other "sources" of vertical integration that were not measured for the alternative firms under study. Examples to be examine are the following: demand variability as proposed by Harrigan that could potentially lead to significant predictions of non vertical integration, sunk investments as determinants of the make or buy decision and the relationship level between employees and customers that has potential effects on the integration process.

Refection on the question if our case qualifies to be described under vertical integration theories is open. We assume that non integration occurs based on the original qualitative data gathered from expert interviews.

At this stage, literature has developed a "new science of organization" that encompasses fields of law, economics and polity, as well as concepts of information economics, agency theory, and population ecology. As a result, the formation of an interdisciplinary social theory is evolving with the aim to guide "good theory and good practice, which as sometimes happens divide". (Williamson, 2008 p.13)

Literature has proposed alternative methods for the prediction of integration. The Herfindahl Index (HI)[66], a measure of supplier concentration, that predicts a higher likelihood of integration into upstream markets with few suppliers could be used to test the hypothesis (Lieberman, 1991, p.459). Nevertheless establishing such an index proves complicated, given the nature of the companies we set to investigate, many of which perform diverse functions in the supplier chain. The difficulty increases as data at company level is not available and comparable. An additional paper outset from this HI perspective could be proposed for future analysis.

Other possible methodology suggested by literature to solve the type of problematic we present is the use of Data Envelopment Analysis (DEA) models. [67] Developed by Charnes et al. (1978),

[66] Herfindahl Index is the sum of the squares of the market shares for each firm within the industry and is always less than one.

[67] Literature refers to the Taiwanese and Canadian banking systems as well as to the US pharmaceutical industry. The usual setting for applications of the DEA concept involves a set of similar decision making units (DMUs), for each of which there is an observable and measurable set of inputs and outputs.

the method is regarded as an efficiency measurement and performance benchmarking technique based on an observable and measurable set of inputs and outputs. In our case inputs regarded as NOEMPL, MODREGSTAT, SPECTYPEPROD, INDITYPEPROD as well as the INDEXES and individual capabilities compared against the outputs in terms of service offers for each firm could lead to interesting results. New DEA literature shows variations of the original model allowing for the inclusion of categorical and numerical variables as inputs and outputs which definitely has an impact on our research. DEA recognizes a piece-wise linear frontier created by "best-practice" firms which sets the standard for comparing other firms in the industry. Meaning that a firm efficiency can be calculated by transforming inputs into outputs relative to its peers. In our opinion DEA may provide a fine mechanism for deriving appropriate measurable categories for this purpose.

Another property of DEA is that it is suitable for estimating non-allocative efficiency because it admits input and output measures of different units and forms (Key et al., 2005, p.517). This result beneficial for theories related to performance of management and sets X-efficiency theories behind.

4. General conclusions

The conclusions of the model have to be considered on light of the following industry changes, since as we know transactions are trigged as a reaction of both exogenous and endogenous changes. Companies will still have to remain competitive and build upon their capabilities and skills to be able to confront an ever changing environment.

As one of the fastest growing branches of the Swiss economy, alternative assets are an important motor for the Swiss financial industry. Hedge funds and private equity funds are the mayor headings inside this asset class. Swiss hedge funds manage approximately USD 270 bn AUM have a market share of 31% according to InvestHedge and 5 of the top 10 funds of funds are Swiss companies. On the other hand, private equity funds account for approximately USD 47 bn AUM[68].

Transaction cost theories helped us quantify the interactions between modes of governance and between modes of governance and the environment. As highlights of such interactions we can mention the behavior of financial conglomerates which acquire significant parts of hedge fund managers in an effort to cover limited in-house capabilities, or of commercial banks which are on the quest for higher margins generated by alternatives. On the other side, clients are moving away from a passive investment portfolios towards investments which generate higher alpha. Such products are often offered by small specialized financial houses.

Further examples of the fragmentation and consolidation taking place within the financial industry are listed below.

(1) A worldwide evolution towards the creation of universal banks or financial groups will continue to take place. Based on this assumption, some authors like Coggan (2008), firmly believe that in a few years time hedge fund groups will no longer exist, only groups that offer a range of ways of managing money will prevail in the market. This situation will derive from future changes in the economic environment.

(2) Consolidated managers will try to exploit their size without running into the diseconomies of scale peculiar to the industry.

[68] Own calculations based on industry data.

(3) Globalization will continue to foster future consolidation which will involve large financial institutions in different markets. Research done by Berger forecasts the continuation of cross-border consolidation of financial institutions in the European Union, and consolidation of large banks with other large financial institutions worldwide (Berger, 1999, p. 154).

(4) On the other side of the spectrum, specialty shops will continue to exploit market anomalies, but as the products become commoditized and anomalies disappear they will be pressured to reposition themselves constantly in the market via innovative products. Such products are most likely to take in consideration ethical concerns such as social responsible investing (SRI). Managers belonging to the main alternative asset categories, hedge funds and private equity will rely on manager skills setting emphasis on alpha in order to survive.

The ECB Report on Consolidation and Diversification in the Euro Area Banking Sector cite the following reasons as important motivations for the increased pace in the consolidation of financial institutions (ECB, 2005, p. 79-87)

(1) Increased internationalization and geographical diversification prompted banks to expand into related activities such as investment banking, asset management and insurance, thereby fostering cross-sector consolidation in the financial sector.

(2) Financial product innovation and diversification in product offerings has impelled financial institutions to look for mergers with other financial entities that complement their product lines. Diversification can procure protection against financial distress.

(3) Value maximization by increasing market power and/or by increasing efficiencies derived from the exploitation of economies of scale and scope and through improvements in managerial efficiency.

Other studies cite globalization as one of the main forces underlying consolidation. “Managers anticipate synergies in product offerings and product development, as well as in distribution and service as a result of mergers” (Amel et al., 2004, p.2509). Moreover, deregulation, disintermediation, technological progress and excess capacity have contributed to consolidation of the financial industry.

On the opposite end of consolidation we encounter specialized firms which are responsible for the fragmentation of the financial industry. The motives of fragmentation are far away from the efficiency concepts which motivate consolidation. *Niche specialists and independent boutiques are willing to provide relationship-based services* (Coggan, 2008, p.16). Moreover, firms want to avoid possible conflict of interests favoring only customers with alternative portfolios who pay higher fees over traditional clients.

Therefore we can conclude that the main responsible factors for fragmentation activities are the following:

(1) Skilled based industry with "movable teams"
(2) Specialists wishing to maintain their independence and own philosophy.
(3) Elimination of excess capacity in order to remain focused on their core business.

4.1. Considerations for the alternative asset industry

As we analyze quantitative and qualitative data and contrast it with business literature we observe the following changes developing in the alternative asset arena:

(1) As the commoditization of the product becomes a reality there will be clearer separation between alpha and beta strategies which will attempt to raise bigger allocation tickets thus reducing the number of people employed to service investors.

(2) The movable office concept will continue to give way to new specialized managers since barriers to entry are low and independence factors are highly valued by entrepreneurs.

(3) Consolidation will benefit mainly global customers in the long run. Such customers will have access to a global financial network, as well as a range of products and services, ranging from tailored alternative investments to securities lending, cash management and banking solutions. Boutique shops can profit from the outsourcing solutions consolidated firms offer liberating internal resources to concentrate on innovative investment schemes. The quantitative analysis where the capacity of financial institutions to offer alternative products was evaluated supports the trend towards consolidation.[69]

[69] Quantitative Survey Alternative Assets Management Survey: Hedge Funds and Private Equity in Switzerland conducted in June 2007

(4) Further studies conclude that financial institutions which did not choose to consolidate have also responded to the changing competitive environment pursuing strategies of diversification and vertical product differentiation. By diversifying, fund managers hope to avoid scale inefficiencies (Goddard, 2007).

(5) In the case of fragmentation, Switzerland accounts for approximately 6400 alternative asset shops. These companies will continue to be the driving force of the financial industry at present. The succession issue specifically present in the alternative world is a caveat which remains to be solved. This situation threatens the specialized shops which could potentially struggle to survive if founders decide to leave or if they become complacent. As a fund manager puts it "It is a one generation business but everyone pretends it is a two generation business in case they decide to sell out".

(6) The degree of "conservative optimism" reflects a moderate view of the future by Swiss managers. Managers assure the industry will continue to develop gradually but by no means will be a strong contender against other financial centers. This could share a light of a perhaps future stagnation of the Swiss alternative industry in near future.

Research remains to be done for the Swiss market covering the effects of combining banks and conglomerates with alternative financial institutions before definite conclusions can be drawn. Nevertheless, if research is done it will still remain difficult to measure the real gains translated to the economy.

To conclude: "Managers are increasingly looking for a market with an opportunity set and no regulatory burdens. A fully established market with no inefficiencies presents no more challenges that is why experts in particular markets will be the managers of the future".

5. Literature

Alchian, A.., & Demsetz, H. (1972). Production, Information Costs and Economic Organization. American Economic Review , 62, 777-795.

Alchian, A. (1984). Specificity, specialization and coalitions. Journal of Institutional and Theoretical Economics (140), 34-49.

Amel, D. B. et al. (2004). Consolidation and efficiency in the financial sector: A review of the international evidence. Journal of Banking & Finance , 28, 2493–2519.

Anderson, E., & Schmittlein, D. (1984). Integration of the sales force: An empirical examination. Rand Journal of Economics , 15, 385-395.

Anson, M. J. (2006). Handbook of Alternative Assets (Second edition). Hoboken, New Jersey: John Wiley & Sons, Inc..

Baker, G., Gibbons, R., & Murphy, K. J. (1997). Implicit Contracts and the Theory of the Firm. NBER Working Papers 6177. National Bureau of Economic Research, Inc.

Bance, A. (2004). EVCA Web Page . (EVCA, Editor) Retrieved February 12, 2007, from How and why to invest in private equity: http://www.evca.com.

Barnard, C. I. (1938). The Functions of the Executive. The American Journal of Sociology , 45 (4), 624-625.

Barnett, W. P., & Carroll, G. R. (1995). Modeling Internal Organizational Change. (Ed.) Annual Review of Sociology , 21, 217-236.

Beer, M. (2002). Building Organizational Fitness in the 21 st Century. In S. Chowdhury, Organization 21C (pp. 1-18). Boston, MA.

Berger, A. D. (1999). The consolidation of the financial services industry: Causes, Consequences, and Implications for the Future. Journal of Banking & Finance , 23, 135-194.

Blair, R. D., & Kaserman, D. L. (1983). Law and Economics of Vertical Integration and Control. New York: Academic Press.

Buchanan, J. M. (1987). The Constitution of Economic Policy. American Economic Review , 77, 243-250.

Carlton, D. W. (1979). Vertical Integration in Competitive Markets under Uncertainty. Journal of Industrial Economics , 27 (3), 189-209 .

Charnes, A. C. et al. (1978). Measuring the efficiency of decision making units. European Journal of Operational Research , 2, 429–444.

Coase, R. H. (1937). The Nature of the Firm. (N. Series, Ed.) Economica , 4 (16), 386-405.

Coase, R. H. (1959). The Federal Communications Commission. Journal of Law and Economics , 2, 1-40.

Coase, R. H. (1960). The Problem of Social Cost. Journal of Law and Economics , 3, 1-44.

Coase, R. H. (1988). The Nature of the Firm: Influence. Journal of Law, Economics, & Organization , 4 (1), 33-47.

Coggan, P. (2008, March). A Special Report on Asset Management. . The Economist , 3-20.

Commons, J. R. (1932). The Problem of Correlating Law, Economics and Ethics. Wisconsin Law Review , 8, 3-26.

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. Journal of Applied Psychology , 78, 98-104.

Davis, L. E., & North, D. C. (1971). Institutional Change and American Economic Growth. Cambridge: Cambridge Universty Press.

ECB. (2005). Consolidation and Diversification in the Euro Area Banking Sector. Frankfurt: European Central Bank.

Eisenhardt, M. K. (1989). Agency theory: An assessment and review. The Academy of Management Review , 57-74.

Farjoun, M. (1991). Beyond industry boundaries: Human expertise, diversification and resource-related industry groups. Working paper .

Field, A. (2009). Discovering Statistics Using SPSS (Third Edition). London: SAGE Publications.

Forthofer, R. N., Sul Lee, E., & Hernandez, M. (2007). Biostatistics: A Guide to Design, Analysis and Discovery. Burlington, MA: Elsevier.

Fung, W., & Hsieh, D. A. (1999). A Premier on Hedge Funds. Journal of Empirical Finance , 6, 309-331.

Furubotn, E., & Richter, R. (1991). The New Institutional Economics: An Assessment. In E. Furubotn, & R. Richter, The New Institutional Economics (1-32). College Station, TX: Texas A&M University Press.

Goddard, J. M. (2007). European Banking: An Overview. Journal of Banking & Finance , 31, 1911–1935.

Grant, R. (1996). Toward a Knowledge-Based Theory of the Firm. Strategic Management Journal , 17 (Winter Special Issue), 109-122.

Greene, W. H. (1951). Econometric Analysis (5th ed.). (P. Hall, Ed.) Upper Saddle River, New Jersey: Pearson Eductation, Inc.

Grossman, S., & Hart, O. (1980). Takeover bids, the free- rider problem and the theory of the corporation. Bell Journal of Economics , 42-64.

Hannan, M. T., & Freeman, J. (1977). The Population Ecology of Organizations. American Journal of Sociology , 82, 929-964.

Hannan, T. & Freeman, J., (1984). Structural Inertia and Organizational Change. American Sociological Review , 149-164.

Harrigan, K. R. (1983). Research Methodologies for Contingency Approaches to Business Strategy. The Academy of Management Review , 398-405.

Hart, O. (1990). An Economist's Perspective on the Theory of the Firm. In O. E. Williamson, Organization Theory From Chester Barnard to the Present and Beyond (154-171). Oxford Univeryity Press.

Hayek, F. (1945). The Use of Knowledge in Society. American Economic Review , 35 (4), 519-530.

Hennipman, P. Welfare Economics and the Theory of Economic Policy. Brookfield, VT.

Hitt, M. A., & Ireland., R.D. (1985). Corporate distinctive competence, strategy, industry and performance. Strategic Management Journal , 6, 273-293.

Holmstrom, B. (1996). Financing of Investment in Eastern Europe: A Theoretical Perspective, Industrial and Corporate Change. 205-237.

Holmstrom, B. (1999). The Firm as a Subeconomy. Journal of Law, Economics, and Organization , 15 (1), 74-101.

Joskow, P. L. (1988). Asset Specificity and the Structure of Vertical Relationships: Empirical Evidence. Journal of Law, Economics and Organization , 4 (1), 95-117.

Kennedy, R. (. (2006). CEO Forum Group Web Page. Retrieved September 22, 2007, from Alternative Assets: Enhancing Returns for Sophisticated Investors: http://www.ceoforum.com.au

Key, B. D. (2005). First-order Economizing: Original Adaptation and the Elimination of Waste in the U.S. Pharmaceutical Industry. Journal of Managerial Issues , 17 (4), 511-527.

Klein, B. (1988). Vertical Integration as Organizational Ownership: The Fisher Body-General Motors relationship revisited. Journal of Law, Economics, and Organization , 4 (1), 199-213.

Klein, B., Crawford, R. G., & Alchian, A. A. (1978). Vertical Integration, Appropiable Rents, and the Competitive Contracting Process. Journal of Law and Economics , 21 (2), 297-326.

Knight, F. (1941). Review of Melville J. Herskovits Economic Anthropology. Journal of Political Economy , 49, 247–258.

Leibenstein, H. (1966). Allocative efficiency vs. X-efficiency. American Economic Review , 392-415.

Lieberman, M. B. (1991). Determinants of Vertical Integration: An empirical test. The Journal of Industrial Economics , 39 (5), 451-466.

Little, R. J. (1988). Missing-Data Adjustments in Large Surveys. Journal of Business and Economic Statistics , 6 (3), 287-296.

Llewellyn, K. (1931). What Price Contract? An Essay in Perspective. Yale Law Journal , 40, 704-751.

Mahoney, J. T., & Pandian, R. (1992). The Resource-Based View Within the Conversation of Strategic Management. Strategic Managment Journal , 13 (5), 363-380.

Malhotra, N. K. (2004). Marketing Research An Applied Orientation (4th Edition). (P. Hall, Ed.) Upper Saddle River, New Jersey: Pearson Education Inc.

Masten, S. E. (1984). The Organization of Production: Evidence from the Aerospace Industry. Journal of Law & Economics , 27, 403-417.

Monteverde, K., & Teece, D. J. (1982). Supplier Switching Costs and Vertical Integration in the Automobile Industry. The Bell Journal of Economics , 13 (1), 206-213.

PEAS. (2009, April). Edinburgh Napier Universtity. Retrieved August 23, 2010, from PEAS (Practical Exemplars and Survey Analysis): http://www2.napier.ac.uk/depts/fhls/peas/

Penrose, E. (1955). Limits to the growth and size of firms. American Economic Review , 45, 531-543.

Penrose, E. (1959). The Theory of the Growth of the Firm. New York: John Wiley.

Perry, M. K. (1978). Price Discrimination and Forward Integration. Bell Journal of Economics , 9 (1), 209-217.

Perry, M. K. (1984). Vertical Equilibrium in a Competitive Input Market. International Journal of Industrial Organization, 2, 159-170.

Pregibon, D. (1981). Logistic Regression Diagnostics. The Annals of Statistics Volume , 9 (4), 705-724.

Ramanujam, V., & Varadarajan, P. (1989). Research on corporate diversification: A synthesis. Strategic Management Journal , 10, 523-551.

Reder, M. (1999). Economics: The Culture of a Controversial Science.

Riordan, M. H., & Williamson, O. E. (1985). Asset Specificity and Economic Organization. International Journal of Industrial Organization , 3, 365-378.

Robbins, L. (1932). An Essay on the Nature and Significance of Economic Science. London: Macmillian.

Ruef, M. (1997). Assessing Organizational Fitness on a Dynamic Landscape: An Empirical Test of the Relative Inertia. Strategic Management Journal , 18, 837-853.

Rumelt, R. (1984). Toward a strategic theory of the firm in R. Lamb, Competitive Strategic Management. Englewood Cliffs, NJ: Prentice-Hall.

Selznick, P. (1950). The Iron Law of Bureaucracy. Modern Review , 157-165.

Shelanski, H. A., & Klein, P. G. (1995). Empirical Research in Transaction Cost Economics: A Review and Assessment. Journal of Law, Economics, & Organization , 11 (2), 335-361.

Simon, H. A. (1957). Models of man: social and rational; mathematical essays on rational human behavior in a social setting. New York: Wiley.

Simon, H. A. (1962). The Architecture of Complexity. Proceedings of the American Philosophical Society , 106 (6), 467-482.

Simon, H. A. (1978). Rationality as Process and as Product of Thought. The American Economic Review , 68 (2), 1-16.

Simon, H. A. (1985). Human Nature in Politics: A Dialogue of Psychology with Political Science. American Political Science Review , 293-304.

Stuckey, J. A. (1983). Vertical Integration And Joint Ventures In The Aluminum Industry. Cambridge, Mass. and London: Harvard University Press.

Teece, D. J. (1990). Contributions and Impediments of Economic Analysis to the Study of Strategic Management. (N. Y. Harper & Row, Ed.) New, York: In J. Fredrickson (ed.) Perspectives on Strategic Management.

Tushman, M. L., & Romanelli, E. (1985). Organizational evolution: A metamorphosis model of convergence and reorientation. In Research in Organization Behavior , 171-222.

UCLA Academic Technology Services, Statistical Consulting Group. (n.d.). SPSS Annotated Output: Multinomial Logistic Regression. Retrieved August 16, 2010, from UCLA Academic Technology Services: http://www.ats.ucla.edu/stat/stata/output/stata_mlogit_output.htm

Wernerfelt, B., & Montgomery, C. A. (1988). Tobin's and the importance of focus in firm performance. American Economic Review , 78, 246-250.

Wessel, D. (2009, October 29). Three Theories on Solving the 'Too Big to Fail' Problem. Retrieved November 12, 2009, from WSJ Online: http://online.wsj.com/article/SB125668497563411667.html

Williamson, O. E. (1971). The Vertical Integration of Production: Market Failure Considerations, American Economic Review, 61, 112-123.

Williamson, O. E. (1975). Markets and Hierarchies: Analysis and Antitrust Implications. New Yorlk: Free Press.

Williamson, O. E. (1979). Transaction cost economics: The governance of contractual relations. Journal of Law and Economics , 233-261.

Williamson, O. E. (1981). The Economics of Organization: The Transaction Cost Approach. The American Journal of Sociology , 87 (3), 548-577.

Williamson, O. E. (1983). Credible Commitments: Using Hostages to Support Exchange. (A. E. Association, Ed.) The American Economic Review , 73 (4), 519-540.

Williamson, O. E. (1984). Credible Commitments: Further Remarks. The American Economic Review , 74 (3), 488-490.

Williamson, O. E. (1985). The Economic Institutions of Capitalism. New York: Free Press.

Williamson, O. E. (1988). The Logic of Economic Organization. Journal of Law, economics, and Organization , 4, 65-93.

Williamson, O. E. (1990). Chester Bernard and the Incipient Science of Organization. In O. E. Williamson, Organization Theory From Chester Barnard to the Present and Beyond (pp. 172-206). Oxford: Oxford University Press.

Williamson, O. E. (1991). Comparative Economic Organization: The Analysis of Discrete Structural Alternatives . Administrative Science Quarterly , 36 (2), 269-296.

Williamson, O. E. (1991b). Economic Institutions: Spontaneous and Intentional Governance. Journal of Law, Economics & Organization , 7, 159-187.

Williamson, O. E. (1998). Transaction Costs Economics: How it Works; Where it is Headed. De Economist , 1 (144), 23-58.

Williamson, O. E. (2002). The Theory of the Firm as Governance Structure: From Choice to Contract. Journal of Economic Perspectives , 16 (3), 171-195.

Williamson, O. E. (2008). Outsourcing: Transaction Cost Economics and Supply Chain Management. Journal of Supply Chain Management , 44 (2), 5-16.

Williamson, O. E. (2009). Pragmatic Methodology: A Sketch, with Applications to Transactions Costs. Journal of Economic Methodology , 16 (2), 145-157.

Wong-Mingji, D., & Millete, W. (2002). Dealing with the dynamic duo of innovation and inertia: The 'in-' theory of organization change. Organization Development Journal , 20, 36-52.

Wooldrige, J. M. (2009). Introductory Econometrics, A Modern Approach (4th ed.). Michigan State University.

Appendices

Appendix 1: Additional approaches to define the boundaries of the firm

The theory of the firm has also been explained through additional approaches. We will cite the most particular developments proposed by each one.

(1) Firm as a production function: only based on physical or technical integration leaving no space to explain non-technological integrative forces such as integration derived from monopolistic market forces. Technology economies of scale and scope, therefore neglect transactional effects elicited by governance structures.

(2) Property right theory of the firm[70]: the concept of directional integration and residual rights of control shifts affects the integrative process. In this case one needs not only to be aware of the attributes of each of the negotiating governance structures but the effects this integration depending which way the ownership goes. The property rights approach shares features with the neo classical approach (based on maximizing behavior), principal agent approach (emphasizes incentive issues) and transaction cost approach (emphasizes contracting costs)

(3) Agency theory set-up: A theory of the employment relation in which output is jointly determined by the state realization and the effort expended by the agent. A need to induce efficient effort expenditure across multiple tasks as complications by reason of asymmetric information and risk aversion arise (Williamson, 1998, p. 33-35).

The above-mentioned approaches present a more realistic theory of the firm and seem to be converging as literature is being developed.

Appendix 2: Original qualitative results

<u>External factor: Regulation and investment schemes</u>

"Regulation generates trust in the financial center and it is a good selling argument; moreover it reflects the importance of the asset class".

Regulation still remains an ambiguous issue when it refers to alternative assets. It is evident that the institutionalization of the whole industry demands regulated business practices. Although most of the interviewees favor regulation for marketing reasons they are well aware of the

[70]Based on the Property Rights Theory of the firm proposed by Sanford Grossman and Oliver Hart (1986)

negative aspects of overregulation. The tendency of overregulation can potentially damage the entrepreneurial flexibility and increases the final cost of the product.
Another ambiguous issue is the underlying aspects that regulation shall include. The extent on which the answers divert corresponds to the type of financial institution the interviewee represents (a single manager institution, a fund of fund, an asset manager or a bank). Most favor regulation of products while others believe that the best approach is to regulate investors. Only a handful agrees on regulating the asset manager. It is clear from the answers that player's lobbing interests are quite different.

"There is a need for a proactive regulator with the right approach because the truth is that capital moves faster than regulation".
At the moment the Eidgenössischen Bankenkommission (EBK) is regarded quite critically as an institution which has adopted a hands-off approach. Many fear the EBK is not eager to regulate and in the aspects where they do endorse regulation it is perceived as not being competitive against foreign regulatory institutions. The main concern expressed is the low paced attitude of the EBK when registering a fund. It takes an average of 6 to 10 months to get a product approved. In addition many believe that regulation of instruments is a cumbersome process. Needless to say, institutions in an attempt to win time and reduce costs opt for vehicles with an offshore domicile. Managers know that 95% of their client base is willing to accept an instrument with a foreign license.

Due to increasing regulatory concerns, in summer 2006 authorities decided to endorse a new collective investment scheme act (CISA[71]) which became the legal basis for the fund business in Switzerland.

"There is no real advantage of this new law[72]; it serves only to defend the internal market disguised as a client protection act".
Even if the objective of the investment scheme is to strengthen Switzerland competitiveness as location for collective investment instruments managers concluded that many will continue to promote offshore vehicles for several reasons:

(1) The establishment of vehicles abroad attempts to reduce costs.
(2) Avoid Swiss regulation.

[71] The CISA (Collective investment schemes act) of 23 June 2006, aims to protect investors ensuring transparency and functionality of the market regulating open-ended collective investment schemes.
[72] CISA

(3) Investors demand offshore solutions. Institutions need to offer a vehicle which adapts to their client needs. Moreover CISA does not benefit all client types. Mainly retail clients are covered by this legislation.
(4) Fund of funds that pursue pure administrator functions rely on offshore structures since they act as an advising management company established in BVI or Cayman Islands.
(5) Offshore locations offer more tax-efficient structures (e.g. general partnerships). Managers believe that at the moment the Swiss structure for investments is not optimal.

External factor: Interactions between financial institutions

"Everyone is after alpha, if banks do not attend this business they would lose potential operations and will not make wins".

Banks, security dealers, distributors and brokers, in an attempt to achieve organic growth have recently started to cross over their original competences and moved their service boundaries to terrains previously reserved to hedge funds and private equity managers.

The industry's evolution stimulated a shift in the core services market players provide. The most noticeable are the following:

(1) FoFs shifted the distribution of their products to asset allocators.
(2) Single managers became independent boutiques, few of them managed by banks and brokers[73].
(3) In an attempt to generate higher margins banks became either product developers or allocators of third party products. This second option driven by capacity constraints and the rigidity big institutions suffer. In a world of product replication where product development within big institutions can take up to a year, banks turn to entrepreneurs in order to fulfill market demands.

"Big players will win market share over time as distribution (understood as allocation to final consumers) becomes more important".

The supply chain activities as well as have been shaped by the development of the industry. The most significant are the following:

(1) As a natural evolution the industry moved from production to distribution (allocation to final consumers) resulting in an "asset gatherer market".
(2) As product became commoditized, allocators will rip the highest profits and win market share since they have the capabilities to bring the products to the market.

[73] e.g. JP Morgan established Highbridge Capital Management

(3) Outsourcing and segregation of activities are key practices employed in order to reach efficiency. On the one hand portfolio management is being outsourced while production is being segregated from distribution.

But the evolution of the industry has also conveyed negative effects. Brokers and single manager hedge funds face a potential conflict of interests. Recently hedge fund managers have accused prime brokers to budge them out of the market. The reason stated is that by providing leverage, brokers are well lettered of the positions taken by the managers. On the other side, complaints about the interaction of big banks and brokers have also been heard. Boutiques believe that the communication flow between them is excessive, leading to diminish the independence a manager must grant.

"In this people business the idea is to have your name on the door".

In addition new market players in the form of independent boutiques emerged as people started to move out of big institutions excelled by the interest of becoming independent and the idea of being able to provide diversification and demand for new products. The concept of "transportable teams" became a reality as independent asset managers capture the advantage of loose organizational structures, higher remuneration and long term entrepreneurship. This new boutiques provide a culture of their own with a more dynamic environment and younger people engaged in leading positions.

External factor: Institutional investors

"Sophisticated demands of institutional investors have created entry barriers which new players find difficult to overcome".

As institutional investors become more knowledgeable they demand higher "quality services". They lurk for performance over transparency; they demand access to the portfolio managers and are more than keen to get customized reports which match their risk systems. Moreover there is a constant pressure on managers to increase liquidity. Investor demands have generated concerns regarding capacity constraints and prompted investments in IT infrastructure.

In an attempt to cope with these demands managers interviewed offered the following strategies. Those catering the single hedge fund market have developed more efficient risk management tools in order to purse the active management objective. On the other hand, fund of funds have implemented sophisticated IT systems which enable the appropriate administration of manager selection, portfolio construction and reporting.

Due to the increased complexity of investors, managers interviewed feel the need to spread their operations to get in touch with their clients in a more efficient and direct way. If a company decides to stay on their own turf they risk growth opportunities and no penetration in foreign markets. Managers are aware that taking these steps conveys the complex decentralization of the investment process.

External factor: Social and economical environment

"Financial services has become a mobile business, location is not an issue anymore as long you have good telecommunications infrastructure and a PO Box. This has shifted mangers priorities when considering a place which can offer attractive living conditions".

Qualitative and quantitative factors such as living conditions, lifestyle, attractive salaries, taxation on people's income and a knowledge intense economy have stimulated the proliferation of new alternative asset players on Swiss territory[74].

Many of the interviewees agreed that the benign tax regime for corporations triggered by cantonal competition have strengthen the market and made raising funds in Switzerland easier. Moreover it is unproblematic to attract a talent pool to Switzerland in case people with special aptitudes are required. Managers agree that in case of alternative products it is simple to recruit people with trading skills in London and New York while positions requiring quantitative skills are covered mainly by Swiss nationals. Interviewees also see establishing in Zurich as an advantage which places them in close proximity to their investors.

"The traditional asset class depicts a clearer view of how the product will react to unexpected market changes".

As is the case of all asset classes, the economic environment has a huge impact on product allocation and in the case of hedge funds it affects directly specific investment strategies. Interviewees claim that in order to attract investors during economic turndowns they must have the firm objective of promoting an appealing product with the long term tag of increasing the percentage of alternative assets allotment in an existing portfolio. Managers agree that allocation goals for alternative assets range between 8 and 15%.

[74] It is well documented that Switzerland and specifically Zurich posses the attributes necessary to make it a world class living area. A recent research publication authored by the City of London analyzes via the Quality of Living Survey a list of 27th selected Financial Centers. Zurich occupies position number one followed closely by Geneva. The study also examines corporate tax and employee tax rates for 21 selected cities. In the corporate tax heading, Zurich remains the most competitive city with a total corporate tax rate for 2006 of 25% (same as Geneva). Regarding the effective employee tax rate Zurich with 23% occupies position 2 after Singapore and Hong Kong both of them with a 15% rate.

Internal factor: Product development

"In the past investors focused more on performance and on a solid institution. Nowadays they emphasize on a strong process and a class team which can bring to the table innovative products"
In an attempt to deal with the fierce competition, that has evolved as the industry matured, managers have undertaken several marketing strategies primarily investing in product development and in developing tactical product distribution policies.

On the subject of product development interviewees recognized that as funds become mainstream it is easier to replicate a standard product. For this reason there must be a shift towards niche strategies (e.g. shariah compliance, social responsible label) and customized products. Nevertheless, they recognize that in order to be cost effective many managers try to offer the same investment solutions to private and institutional investors which include "gating" provisions limiting the outflow of the fund.

Other managers rely on focused marketing to attract new business. They concentrate on bigger but fewer products allowing for economies of scale, according to some interviewees, by doing so they allow themselves to remain focused. They trust that in the near future competition would give way to an earning model based exclusively on performance fees eliminating completely the management fee[75].

It is well known to FoFs that the incompletion of the market is not on dictated by a shortage of products available but by the deficient of strategies employed in accessing the different products available.

With respect to product distribution to final investors, two proceedings dictate the selling efforts: either attending customized product showcases or relying on RFPs (request for proposal). The first case has given way to highly customized products demanding specialized solutions provided mainly by boutique managers.

"Investors will seek the squaring of the circle: products that increase chances and reduce risks"
From an investment perspective all investors are constantly looking for efficient and correct products. This has forced fund managers to take more risks and to move to risk-adjusted performance measures that combine returns with volatility developing alpha investment

[75] Recent case of CSFB Tremont index initially tied to a 1% management fee, but competition may soon lower this fee.

solutions. Besides risk adjusted returns[76] investors are also interested in social responsible investing (SRI) adding more pressure to the production of innovative solutions.

Internal factor: Manager skills

"In order to manage your operations you need more skills than only deal making and a clean structure"

According to most interviewees an integrated service profile is comprised by a team with a solid financial background which incorporates entrepreneurial skills and risk management expertise.

Still specific capabilities are required depending on the type of manager you represent. In case of single managers, trading, risk and strategic management skills are essential. From a fund of funds perspective capabilities necessary to mange a business successfully includes the following: investment management, structuring and distribution skills. For FoFs client services and administrative skills are essential.

The ability to select managers and portfolio construction has become commoditized; there is a tendency towards tailoring services based on distribution strategies and client customization services.

Internal factor: Structural changes

"There is a huge difference between a small boutiques which aspire for long term business made of private and institutional investors, and asset gatherers which basically are running for the fees".

The evolution of the industry has conveyed significant structural changes for the alternative asset players. Producers of alternative assets, primarily single hedge and private equity boutiques will further fragment following the industry needs for specialists to target focused deals and strategies. On the other hand, consolidation of funds of funds and asset gatherers will occur. Relying on their capabilities to attract assets quicker than small players, allocators are looking actively to participate in a business which generates internal value through fees.

Fragmentation: "Boutiques will remain a model of choice for the future".

The skilled based nature of the alternative asset industry has given managers a "safeguard screen" against competitors. Specialized managers will survive more comfortably against the consolidation of the industry since a knowledgeable staff is the most valuable resource in this

[76] The concept that refines an investment's return by measuring how much risk is involved in producing that return, which is generally expressed as a number or rating.

business. Moreover, capacity to invest across financial instruments and tailoring investment solutions gives managers a competitive advantage against big market players which present more inflexible organizational structures. Only those managers which offer interesting investment opportunities as well as niche products will endure.

Boutique managers are interested in remaining small. Limiting the size of the funds under management they avoid their performance being diluted which could in turn bring down the overall level of return. Besides managers want to remain independent therefore retaining control of their investment strategies.

Consolidation: "Being a big organization allows you to go to the other leagues since nothing in this business is static".

As stated in the interactions between financial institutions section, generating higher margins has been the driving motor behind the consolidation of the industry. Big banks and insurances are out buying significant parts of hedge fund mangers in an effort to cover limited in-house capabilities which have deprived them form short term profits. Some examples that support this trend are the following. As of December 2006 the AXA Group acquired 100% of Suisse Group's Winterthur for €7.9 billion, with the purchase it procured the internal private equity team responsible for investing captive monies. Another much talked M&A was Citi announcement in May 2007. Citi purchased the outsourcing provider BISYS for $1.45 billion. This transaction was designed to boost the bank's administration and distribution services capabilities for the rapidly growing hedge fund, mutual fund and private equity fund industries.

On the specialists side Horizon21 acquired the private equity fund of fund business of Swiss Re in 2006. Swiss Re subsequently became a shareholder in Horizon21 Private Equity, which is now 70 per cent owned by Horizon21 and 30 per cent owned by Swiss Re.

Nevertheless this exercise raised once again the issue of effectively integrating institutions, since capacity constraints derived from the inability of effectively managing investments with the current number of employees and assets under management are still overlooked.

On the other hand, limits to consolidation are still present in the form of "know-how barriers" based on specific knowledge of investment styles. Regulatory issues hamper as well the ability to complete consolidation. One can conclude that only several players of the market chain where knowledge attributes can be easily replicated. This is the case of fund of funds which will be eventually absorbed by bigger institutions.

Appendix 3: Original quantitative results (selected topics)

Degree of competence index (DCI)

In order to visualize the real competences offered in the Swiss financial market place by the institutions surveyed, an index was generated. The index was created by adding the percent average of the degree of competence in both services for the 4 different activities: investing, structuring, distributing and advising for all products managed. Average numbers were withdrawn from a Likert scale and the difference between high competence and low competence was calculated. This mathematical equation reduced the information into a two digit number, which was named degree of competence index. The index ranges from -44 to +38, the bigger the number equated the greater the competence shown by the institutional entities.

As reflected in Table 22, all groups analyzed, show a positive indicator when their investing capabilities were examined. This means that most of the institutions enjoy a sound and stable investing background that can be offered to their clients. Once again specialists such as security dealers show the strongest degree of competence both in investing and advising capabilities.

The successful management of alternative assets requires marked management skills and a trained competence in structuring and distribution. Therefore competence in both activities is an impending requirement. Nevertheless results from the survey show that the financial institutions servicing the Swiss market clearly lack balanced competences.

	Banks	Security dealers	Non regulated
Investing activities	5	33	2
Structuring activities	-38	-8	-10
Distributing activities	-18	-13	-40
Advising activities	-8	25	-14

Table 22 Degree of competence index by institution type
Source: Own research

If analyzed by product division things look quite similar. Financial institutions established in Switzerland show a strong competence in investment activities in both single hedge funds and

single private equity funds. Advising in single private equity funds is a superior capability provided by financial institutions as well.

Hedge Funds Activities	DCI	Private Equity Activities	DCI
Investment in a trading strategy or SHF	24	**Investing in SPEFs**	38
Structuring SHFs	-37	**Structuring SPEFs**	-2
Distributing SHFs	-43	**Distributing SPEFs**	-33
Advising on SHFs	-22	**Advising on SPEFs**	20
Investing in FoHFs	2	**Investing in PEFoFs**	-36
Distributing FoHFs	8	**Distributing PEFoFs**	-44
Advising FoHFs	14	**Advising PEFoFs**	-39

Table 23 Degree of competence index by product type
Source: Own research

Clustering was observed

As mentioned above, the clustering effect was patent in the Swiss financial market. The solid financial experience of the banks was manifest in the number of institutions that flourished around the most important financial cities dedicated solely to the management of alternative assets.

Analyzed by institution type, the headquarters of 33% of the banks offering alternative assets are established in Zurich, the same is true for Geneva followed by Lugano with 25%. In the case of security dealers specializing in alternative assets, 50% are headquartered in the Zurich area, the remaining 50% are scattered throughout the country in low concentrations. Fifty-one percent of non-regulated institutions active in the alternative market are present in the Zurich area, 28% around the Zug/Pfäffikon agglomeration, and 15% in Geneva while the remaining 6% are distributed along the Swiss territory.

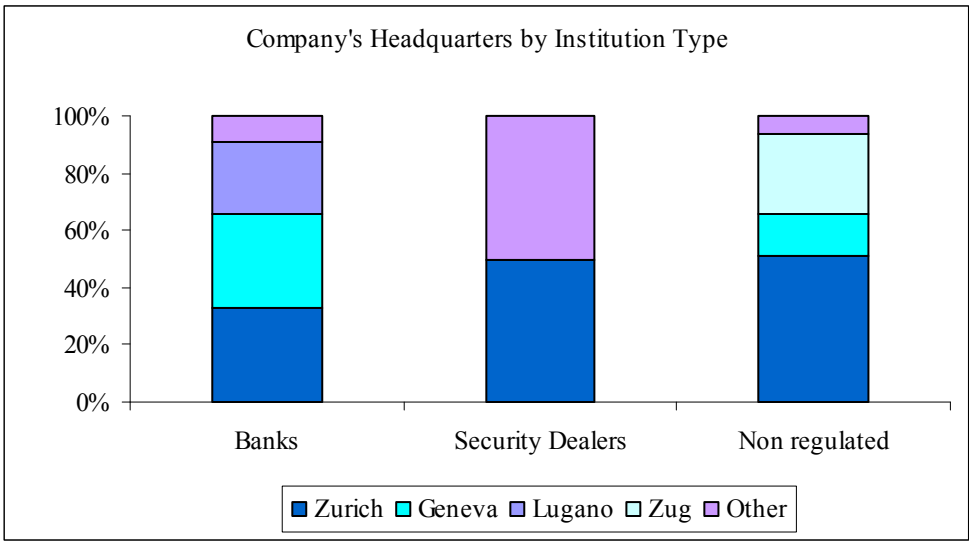

Figure 6 Company's headquarters by institutional type
Source: Own research

Analyzing the clustering effect by the service type we can see that 35% of the HFCos are situated in Zurich followed by 19% respectively in Geneva and Lugano. Interestingly PECos appear to follow a strong clustering effect since 61% are located in the Zurich area, followed by 11% around Zug. IntegratedCos, that is financial institutions offering both services, are established as follows: 39% in the Zurich area and 17% in the Geneva area. If we analyze HFCos, PECos and IntegratedCos together, we can observe that 45% of the institutions are located in the Zurich area, 19% are located in the Geneva area, 17% in the Zug/Pfäffikon area and finally 8% in Lugano.

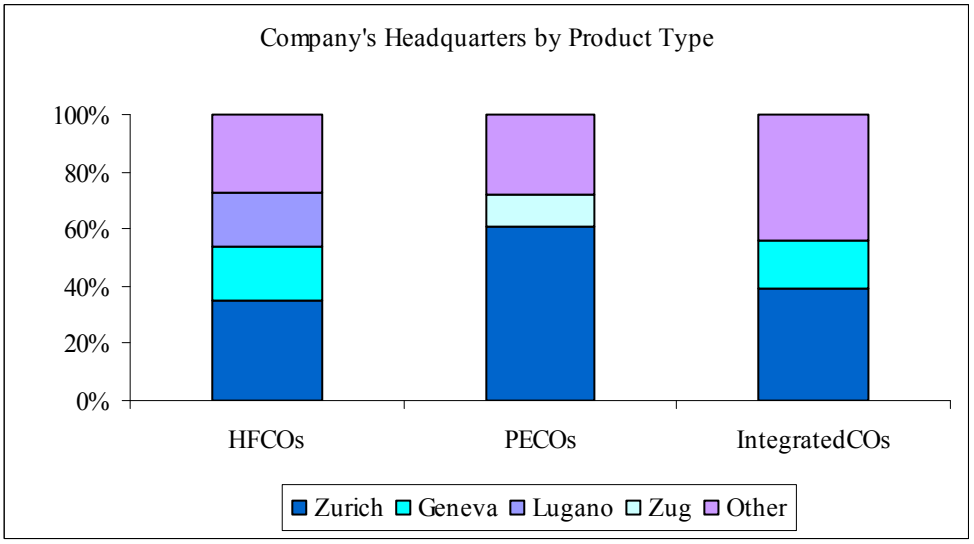

Figure 7 Company's headquarters by product type
Source: Own research

Furthermore, the average year of establishment for all institutions computed signals 1964. Nevertheless, non-regulated entities, which in greater part are engaged in offering solely alternative assets, were on average established in 1993, proving that this is new business line with a young and dynamic workforce. The modal value for the whole AAUs was 1998.

Customer base

The results signal a strong inclination of banks to serve private clients, mainly high net worth individuals, which sum up an important market share. The main reason being that many of these clients are already part of their customer base who are willing to diversify their portfolios investing in alternative assets in order to see an improved risk return profile.

Specialization by type of client was observed in the case of non-regulated institutions which tend to serve the group comprised by institutional clients. In 70% of the cases these clients were pension funds.

	Banks	**Security dealers**	**Non regulated**
Private clients	56%	38%	28%
Institutional clients	21%	25%	43%
Banks/Other financial institutions	14%	31%	13%
Other client types	9%	6%	16%

Table 24 Average number of clients served by institutional type
Source: Own research

Impact on value creation

For the ranges of AUM analyzed most of the figures reflect a positive correlation between the number of employees managing alternative assets and the AUM the financial institutions exhibit. An interesting case is again security dealers, where in proportion to the AUM they manage medium size (1bn - 5bn) security dealers employ the majority of the professionals.

If analyzed along the dimension of service division PECos offer a remarkable image as well. Small and big companies employ on average the same amount of persons 3.8 and 4.5 respectively. Nevertheless, medium size institutions utilize the biggest amount of employees

leading to conclude that those institutions are already recognized mid size shops specializing in private equity transactions.

Table 25 offers the complete data for all the ranges analyzed divided by institutional type and by services offered.

	Average number of employees by institution type			Average number of employees by product type		
Range	**Banks**	**Security Dealers**	**Non regulated**	**HFCOs**	**PECOs**	**Integrated COs**
Less than 250 m	2.7	2.8	3.8	2.3	3.9	2.0
250 m to less than 500 m	3.0	5.0	5.5	4.2	3.7	2.5
500 m to less than 1 b	4.0	1.0	11.0	4.0	18.0	1.0
1 b to less than 5 b	9.2	21.0	12.0	10.6	17.2	8.1
5 b to less than 25 b	7.5	1.0	23.0	21.0	7.0	15.4
25 b or more	30.0	8.0	24.6	29.3	2.0	22.9

Table 25 Assets under management compared to average number of employees by institution type and by service provided (m=CHF million, b=CHF billion)
Source: Own research

Appendix 4: Alternative Asset Management Survey

Alternative Assets Management Survey: Hedge Funds and Private Equity in Switzerland

Survey purpose
The Swiss Banking Institute is conducting a survey on the activities performed by alternative asset companies established in Switzerland. Your responses will provide a focal insight into the value generated by the alternative asset class comprised by Private Equity and Hedge Funds in terms of assets under management and number of employees.

How to complete the questionnaire?
For each question, please fill in the provided space or put a cross in the box next to the answer that comes closest to your view about the particular topic. As indicated, for some questions it is possible to mark several answers. If you think the options provided are not applicable to your business line or you don't have the knowledge to answer a question, please leave it in blank or cross "don't know".
Partially completed questionnaires are still valuable to us!

Definitions
For question B6 please consider the following definitions:
SHFs= Single Hedge Funds
FoHFs= Fund of Hedge Funds
SPEFs= Single Private Equity Funds
PE FoFs= Private Equity Fund of Funds

How long does it take to complete the questionnaire?
The survey should take approximately 10 minutes to complete.

Confidentiality
Your responses will be treated as strictly confidential. In reporting the survey results, we will always group responses together, so that it will not be possible to identify a firm or an individual answer. Of course, it is possible to submit the questionnaire anonymously.

Returning your questionnaire
If you choose to complete the survey in the hard copy enclosed, please return your completed questionnaire in the envelope provided until the **30th of March 2007** to the

Institut für schweizerisches Bankwesen
z.H. Frau Laura Kuster
Plattenstrasse 14
8032 Zürich

Each participant who wishes will receive a detailed analysis of the survey findings.

Thank you very much for you participation!

Part A General Information

Company Name? : _____

In which year was the company founded? : _____

Where is the headquarters of your firm located? :_____

What is the regulatory status of your company?

- ○ Bank
- ○ Insurance Company.
- ○ Security Dealer (Effektenhändler/Courtier en valeurs mobilières)
- ○ Other, please specify: _____

Would you describe yourself as a(n): (more than one answer is possible)

- ○ Advisor
- ○ Intermediary
- ○ Investor

Is your company operationally active in:

- ○ Hedge Fund activities
- ○ Private Equity activities
- ○ Both: Hedge Fund and Private Equity activities

In which year did you started operational activities in:

Hedge Funds:_____ Private Equity:_____

Part B Market Related Questions

B1 What is the total number of the group staff and how many are dedicated to Hedge Fund and Private Equity activities (front, middle and back office)?

	Total group's staff	Dedicated to Hedge Funds	Dedicated to Private Equity
In Switzerland			
Outside Switzerland			

B2 As stated in the previous question, how is the staff dedicated to Hedge Funds and Private Equity distributed according to the activities they perform?

Activities performed	**Hedge Funds**		**Private Equity**	
	In Switzerland (in%)	Outside Switzerland (in%)	In Switzerland (in%)	Outside Switzerland (in%)
Investment activities				
Structuring activities				
Distribution activities				
Advisory activities				
Other activities				
Total	**100%**	**100%**	**100%**	**100%**

B3 Which of the following ranges includes the total assets (AUM in CHF) of your firm?

- ○ Less than CHF 250 million
- ○ CHF 250 million to less than CHF 1 billion
- ○ CHF 1 billion to less than CHF 5 billion
- ○ CHF 5 billion to less than CHF 25 billion
- ○ CHF 25 billion or more

B4 According to your assets under management (AUM in m CHF) how much of the overall amount (as % of the total) is managed under the following jurisdictions and along the different investment products?

	Single Hedge Funds	Fund of Hedge Funds	Single Private Equity Funds	Private Equity Fund of Funds
In Switzerland				
Outside Switzerland				
Total	**100%**	**100%**	**100%**	**100%**

B5 What percentage of your Hedge Fund and Private Equity product offerings do you distribute to:

	Hedge Funds	Private Equity
Private clients		
Institutional clients		
Banks/Other financial institutions		
Others		
Total	**100%**	**100%**

B6 How would you describe your company areas of competence according to the degree of involvement?

1= areas where the company is not active at all 5= areas where the company is strongly active

	1	2	3	4	5	Don't know
Hedge Funds						
Investment in SHFs	O	O	O	O	O	O
Structuring SHFs	O	O	O	O	O	O
Distributing SHFs	O	O	O	O	O	O
Advising on SHFs	O	O	O	O	O	O
Investing in FoHFs	O	O	O	O	O	O
Distributing FoHFs	O	O	O	O	O	O
Advising FoHFs	O	O	O	O	O	O
Private Equity						
Investing in SPEFs	O	O	O	O	O	O
Structuring SPEFs	O	O	O	O	O	O
Distributing SPEFs	O	O	O	O	O	O
Advising SPEFs	O	O	O	O	O	O
Investment in PE FoFs	O	O	O	O	O	O
Distributing PE FoFs	O	O	O	O	O	O
Advising PE FoFs	O	O	O	O	O	O

B7 How would you evaluate the near future (next 10 years) of the alternative asset industry in Switzerland?

- O Will lose market against other Financial Centers
- O Will remain as is
- O Will continue to develop gradually
- O Will remain competitive against other Financial Centers
- O Will establish itself as a forerunner
- O Don't know

B8 Are you willing to participate in further surveys or interviews?

○ Yes ○ No

B9 To receive an electronic copy of the results, please provide your contact information below:

Name _____

Position _____

Organization _____

Email _____

LAURA ALDAPE

PERSONAL DATA

Höchistrasse 67
8610 Uster
Tel. (078) 742-6911

Born July 5, 1973
Married
Nationality: Swiss and Mexican
E-mail: laura.aldape-kuster@uzh.ch

EDUCATION

2006-2011	**University of Zurich, Department of Banking and Finance** Faculty of Economics, Business Administration and Information Technology Doctoral Studies in Banking and Finance	Zurich, CH
2004-2005	**University of Georgia, Center for Continuing Education** Principles of Marketing Research Certificate Course	Washington, D.C., USA
2001-2002	**Europa Institut, University of Basel** Master of Advanced European Studies, interdisciplinary program Law, Politics and Economics • Magna cum Laude	Basel, CH
1990-1994	**Instituto Tecnológico y de Estudios Superiores de Monterrey** Bachelor Degree in International Business, Major in Finance • Magna cum Laude	Monterrey, MX
Summer 1992	**Ecole Supérieure de Commerce de Lyon**	Lyon, FR

PROFESSIONAL EXPERIENCE

2006 – 2010 **ISB Swiss Banking Institute – University of Zürich** — Zurich, CH

Research Assistant

- Research activities supporting the Swiss Financial Center Watch project:
  - Measure the value generated by the alternative asset providers in terms of assets under management and number of employees with exclusive focus on the hedge fund and private equity institutions established in Switzerland.
  - Use data modeling processes, intricate databases, market research tools and empirical research to model and explain the role of the financial center market players across the value chain.
- Management of the internal questionnaire platform to formulate research material.
- Revision and text editing of The International Private Banking Study 2009.

2005 **Adveq Mangement AG** — Zurich, CH

Associate Market Development

Development of strategic market development activities such as:

- Iterative analyses focused on monitoring market trends, competitor activities and investor needs.
- Bottom-up market analysis designed to support product development.
- Marketing support activities such as investor material preparation and mass mailing campaigns.

2005 **Smithsonian Institution: National Museum of Natural History** Washington, D.C., USA

Researcher Fundraising Department

- Conduction of market segmentation analyses targeting potential donors and new project sponsors.

2003-2004 **Panalpina Management Ltd.** Basel, CH

Global Market Research Manager

Design and coordination of strategic corporate projects which included:

- Brand positioning project conducted on 10 locations worldwide.
- Development of a dynamic customer satisfaction survey linked to the CRM database.
- Quantitative research studies aimed to support product development.
- Research of market trends deriving in forecast reports.
- Creation of a centralized market intelligence databank.
- Developed marketing content for the company newsletter.

2000-2001 **Mexico Online** Monterrey, MX

Editor and Content Administrator

- Developed information for e-business platforms, formulate data channels for trade portals and facilitate design structure for web creation.

1999 **Canada Trust** Vancouver, CAN

Internship Program Financial Advisory Project

- Participated in an internal marketing project aimed to provide guidance to the sales management team in terms of improving the financial advisory process.

1998-1999 **Motorola** Monterrey, MX

Treasury Coordinator- Controller

- In charge of cash flows, bank accounts, administration of loans, wire transfers and relations with national and foreign banks.

1997-1998 **The Boston Consulting Group** Monterrey, MX

Information Services/ Marketing Assistant

- Conducted extensive market research supporting case studies.
- Preparation of presentations for clients.
- Development of a database containing relevant client information.
- Evaluate and administer internal publications.

1995-1997 **Citibank Group** Monterrey, MX

International Department Clerk

- Administration of financial products such as loan packages, letters of credit and money transfers.

LANGUAGE SKILLS

Spanish ILR level 5 native language

English ILR level 5 bilingual proficiency

German ILR level 4 professional working proficiency

French ILR level 1 elementary proficiency

COMPUTER SKILLS

MS- Office, SPSS, STATA, SAP CRM Marketing Module, Ms Access

AREAS OF INTEREST

Quantitative analysis specifically consumer behavior and changes in the value chain derived from the globalization of product and services.

Data analysis, financial research and implementation of processes.